Office Investment Markets in South-East Asia

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Ph.D.

The Factors Determining Office Investment Markets in South-East Asian Cities: With Reference to Hong Kong, Singapore, Taipei, Bangkok and Kuala Lumpur

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Abstract

This thesis is the result of four years' intensive study of office investment markets in South-East Asia. The research topic stemmed from the rapid progress in office markets in the region during the early 1990s, and the upheaval resulting from the institutional problems of 1997. Most of the past research on the determinants of office investment markets has concentrated on European and North America cities. South-East Asia and its cities have largely been ignored. The few studies that have been conducted rely mainly on econometric modelling. However, opportunities in the user and investor office markets are influenced by non-econometric factors such as the nature and evolution of the markets and their institutional environment, but these have largely been ignored in previous studies. This research examines office markets by combining a demand and supply econometric framework and institutional analysis.

The thesis begins with a presentation of the relevant literature and a critical examination of this branch of knowledge: including a review of forecasting and institutional studies. Subsequently the drivers of office investment markets are investigated using both quantitative and qualitative methods. Five South-East Asian prime office markets are used as case studies: Singapore, Hong Kong, Taipei, Kuala Lumpur and Bangkok. This research initially assesses the maturity of office markets in each city. A time-series multiple regression analysis is then carried out, using office rental data and macroeconomic data to identify the relationship between office rental values and macroeconomic variables in the five cities. The results of a questionnaire survey and face-to-face interviews are then presented, which were conducted with property researchers in the region, and from these, the institutional factors which have an impact on office investment market performance are identified.

The study concludes that the performance of office investment markets (office rental values) can be modelled using macroeconomic factors in the cases of mature cities, such as Singapore and Hong Kong. However, office investment market performance can only partly be explained by macroeconomic factors in emergent markets (Kuala Lumpur, Taipei and Bangkok).

The results of the econometric analysis show that demand side variables are the main drivers for office investment market performance in South-East Asian cities. Institutional factors also have an impact on office investment market performance. This research shows that legal and economic institutional factors and political stability are considered to have the most influence on office investment market performance in South-East Asian cities, especially in Kuala Lumpur, Taipei, and Bangkok (emergent markets), though the effects cannot be quantified in modelling studies. As regards Singapore and Hong Kong (both mature markets), econometric modelling results perform reasonably well, and institutional factors have little influence on office investment market performance in those cities.

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Contents

List of Tables

List of Figures

Chapter 1 Introduction

1.1 Background

All investment implies an assessment of the future, including expected income growth, and property investment is no different. Fraser (1986) argues that "*investment returns from property derive from rental income and change in value, and property value is a function of the current rent and the expected future rent. So ultimately, investment returns derive from rent, and successful investment will depend on an understanding of the principles and forces which explain the market's determination of rental value*". Hendershott et al. (2002) also say that "*rent, the price of space, is arguably the most important variable in property economics. The value of space is the present value of current and future rents, and rent is a large component of many household and business budgets. As a result, rent determination has been extensively studied over the last quarter century*".

Property investment requires estimates of future rental levels; therefore, any successful investment requires successful forecasting. Forecasting is an integral part of the decision making activities of management (Makridakis et al. 1998). Offices have always formed a significant component of institutional commercial property portfolios, and office investment still accounts for a large share of their total holding by capital value (Gardiner et al. 1988, IPD index 2004[1-1]). Hence, it is important to understand the factors influencing office investment markets.

In previous office rental determination studies, forecasting is usually done using macroeconomic variables and various measures of office floor space (Gardiner et al. 1988, Giussani et al. 1993a, D'Arcy et al. 1994, McGough et al. 1998, Keogh et al. 1998, Chin 2003), and has generally been successful in mature Western markets, such as London, Paris, Helsinki, Dublin and Frankfurt (Giussani et al. 1993a, 1993b, D'Arcy et al. 1994, 1997, McGough et al. 1998, D'Arcy et al. 1998). On the other hand, forecasting has not had satisfactory results in Western emergent markets, such

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1-1 Office investment holdings account for 32% of the total property investment holdings over the last five years. http://www.ipdindex.co.uk

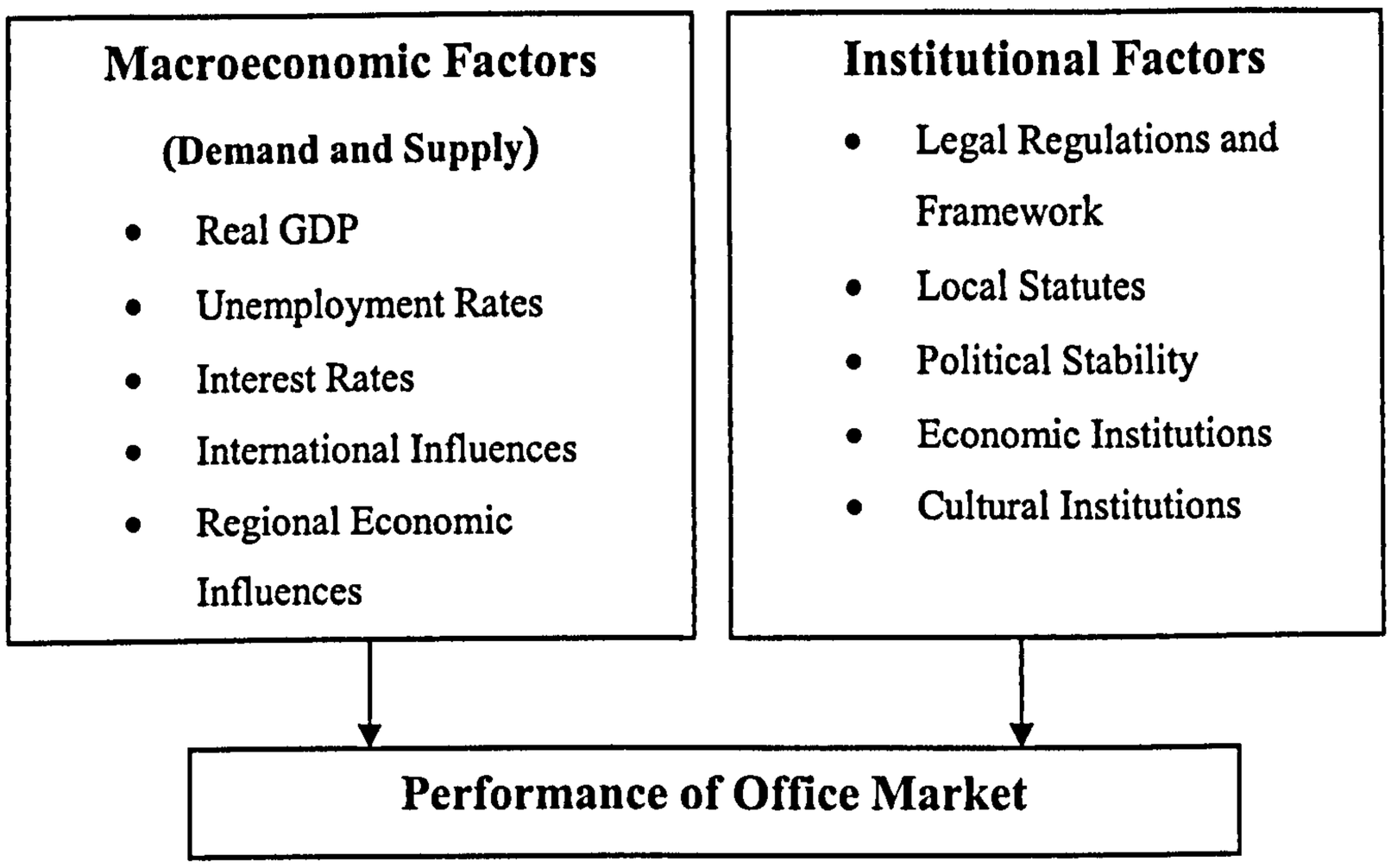
as Milan, Barcelona, and Madrid, owing to poor information availability and local institutional constraints (Giussani et al. 1993a, 1993b, D'Arcy et al. 1994, 1997).

There is no less a need to forecast property investment in emergent markets, such as South-East Asian cities. Relatively few studies have been published about this region in the past. This thesis examines drivers of office investment markets in South-East Asian cities and the transferability of Western forecasting techniques to emerging Asia-Pacific property markets. A significant/major advantage for researchers is that the data for office markets are generally regarded to be the richest and most accessible. This was a factor operating in favour of researching in this area.

1.2 Understanding Property Markets

There are several general aspects that an economic analysis of office investment markets needs to consider. Firstly, the analysis should capture the true drivers of office investment markets. Secondly, the analysis should have regard to the "non-economic" aspects of office investment market activity. Thirdly, economic analysis should reflect the legal, social, institutional and historical context of office market activity and how these factors in turn have influenced the structure of individual office investment markets. Fourthly, the future returns of office investment markets are dictated by economics and institutional factors (Figure 1-1).

Figure 1-1: Influences on Office Investment Market: An Economic Analysis



An economic analysis of the office market is problematic, owing to the complex characteristics of property. Econometrics cannot explain all the complexity, so there need to be other forms of analysis. Due to their heterogeneous nature, imperfect information, individual and inelastic supply of property markets, it is difficult to analyse property markets as a whole (Harvey 2000). There are two main approaches available: econometric modelling analysis and an institutional approach (D'Arcy 1998).

These aspects play an important role in widening the focus of an economic analysis of office investment markets and in doing so ensure that the resulting frameworks for analysis are both complete and relevant in the context of property. Coase (1992, cited in D'Arcy 1998) says "*it makes little sense for economists to discuss the process of exchange without specifying the setting within which the trading takes place, since this affects the incentives to produce and the costs of transacting*". In other words, economic analysis should comprise both econometric analysis (quantitative) and institutional analysis (the more qualitative analysis of how the local market infrastructure and context works).

Current econometric studies have constructed models which capture certain key characteristics of the office rental determinants (Gardiner et al. 1988, Giussani et al.

1993a, McGough et al. 1994, Keogh et al. 1998). In the majority of empirical work on rent determination, the model used takes the form of an equation including both demand and supply proxy variables (Gardiner et al. 1988, Giussani et al. 1993a, 1993b, D'Arcy et al. 1994, D'Arcy et al. 1997). Typical variables included in the equations are:

- real GDP and unemployment rate as proxy variables for the general economic condition;
- service sector GDP and employment rate as proxy variables for trends in demand for office based services;
- composite leading indicators such as share price and consumer price index as proxy variables for the prediction of economic activity;
- real interest rates and lending rates as proxy variables for the direction of monetary policy; and
- office floor space as a proxy variable for the supply side.

These models provide an analytical basis for explaining market activity, but few, if any, models give a fully theorised account of all the features of the property market discussed above (for example, imperfections of office markets) (McGough et al. 1998). At best, most models provide a partial analysis of the market.

There are certain problems associated with this type of research when applied in a South-East Asian context. Firstly, it is difficult to find the variables to use which proxy demand and supply forces in the market, and the availability and accuracy of the data for the chosen variables are both questionable (Giussani 1993a, Mitchell et al. 1997, Keogh et al. 1998, Chin 2003, McGough et al. 2003). Secondly, the assumption of market efficiency is unrealistic (Evans 1991, 1995, Orr 1995, Keogh et al. 1999, Lim 2000). Thirdly, nearly all previous rental forecasting has been carried out in mature markets in Western cities, and pays scant attention to institutional factors.

Keogh et al. (1994, 1999) suggest that the ways maturity and market efficiency affect market behaviour are related. They argue that the established tests of, and requirement for efficiency are largely inapplicable to property markets, since they assume away

many of the immutable characteristics of property. As a consequence, they propose the idea of property market maturity: maturity could enhance market efficiency, although it is impossible to reach perfect efficiency (Armitage et al. 1996). Many characteristics of a more mature property market also have an impact on the performance of that market, such as increasing the choice of property products, greater market openness and improved information. These characteristics tend to expand the scope of market opportunity and allow it to satisfy a greater range of motives and aspirations.

In market conditions of perfect competition (i.e. close to a fully mature market), the price of the goods is wholly decided by the interaction between demand and supply. However, assuming a perfect market is unrealistic in the case of office markets, as the property market is heterogeneous, and no single economy is in a state of perfect competition.

In terms of economic theory, therefore, the price of goods is a function of demand and supply in a perfectly competitive market; whereas the price of goods is a function of demand, supply and institutional constraints in less competitive markets.

More Perfect Competitive Market: Goods Price = close to f (Demand, Supply)
Less Perfect Competitive Market: Good Price = f (Demand, Supply, Organisational Constraints)

As a final element in the discussion of the drivers of office investment market performance, it is important to consider the influences of institutional barriers. Institutional structure and form vary from country to country and change from time to time. The influence of institutional barriers is largely neglected by econometric modelling studies, because institutional factors cannot be quantified. Some past studies have looked at the financial institutions, legal institutions, and political institutions relating to the property market (Adair et al. 1995, Keogh 1996, D'Arcy et al. 1997, Newell et al. 1995, Newell et al. 2001). However, none of these studies has provided a sufficiently wide selection of variables to examine the impacts of the institutional factors on office investment markets. As property markets are imperfect

and inefficient, understanding the institutional barriers plays an important role in analysing the office investment market.

This thesis examines how well these two approaches, econometric modelling and institutional analysis, can be applied in South-East Asian cities.

1.3 Overview of South-East Asia

Asia represents the largest land mass in the world. It covers an area from the Arctic to the Equator, from the Urals to the Pacific. It also contains the second largest economy (Japan) on the globe (Asian Development Bank 2001). The diversity of countries in Asia reflects the differences in geography, climate, natural resources, races and environment. Asia is a definition of a region geographically, but its fundamental features change from country to country.

Over the past five decades, development and modernisation in East Asia have surpassed other developing regions, as more East Asian countries have recorded faster growth and social change. Japan emerged as the second largest economy in the world, and the People's Republic of China (PRC), the Republic of Korea (also known as South Korea), Republic of China (also known as Taiwan), Hong Kong, Singapore and other parts of South-East Asia became economic powerhouses (World Bank 2000, Asian Development Bank 2001).

East Asian economies have enjoyed high rates of sustained economic growth, generating a quarter of the world's total output and services, or gross national product (GNP). East Asia also appeals to many foreign investors, attracting some US $66 billion in foreign direct investment, which represents about 45% of all such flows to developing countries (ADB 2002).

Lim's research (2000) stressed the importance of the South-East Asia region. East Asia is becoming more economically integrated as a consequence of increased trading and investment, particularly in the "Four Tigers" (Hong Kong, Taiwan, Singapore and South Korea), and "Newly Industrialised Economies" (Malaysia, the Philippines, Thailand). South-East Asian markets seem to be integrated in terms of location, but

there may be differences among them in terms of their level of development and cultural diversity. There have been few studies of property markets in South-East Asia, particularly comparative regional studies. Despite the property boom in the early 1990s, which attracted much capital to the region from foreign investment, little relevant research has been carried out on the office investment market in this region, particularly for those emergent markets (Bangkok, Taipei, and Kuala Lumpur). For the purpose of establishing the drivers of office investment markets in South-East Asian cities, a range of variables and factors will be discussed in this research.

Five cities were chosen for this thesis: Singapore, Hong Kong, Taipei, Kuala Lumpur, and Bangkok. Singapore, Hong Kong and Taiwan (Taipei) are considered to be in the category of nearly developed countries; however, Malaysia (Kuala Lumpur) and Thailand (Bangkok) are regarded as developing countries (ADB 2001). In addition, Singapore and Hong Kong are also recognised as at a more mature in terms of their property markets, whereas Taipei, Kuala Lumpur and Bangkok are considered to be emergent markets (Seek 1996, Armitage et al. 1996, Armitage 1996, Lee 2001, JLL 2001, JLL 2003). As a consequence, these five cities can be used as examples to provide a cross-section of office investment markets in South-East Asia, covering both developed and developing cities.

The previous two sections have revealed that there is a gap in knowledge and established a focus for the research. This is articulated in the next section.

1.4 Aim of the Thesis

The stated aim of this research is to identify the principal drivers for office market performance in five South-East Asian cities. The following objectives form the core of the study:

1. To examine the factors which influence office market performance.
2. To understand the behaviour of the office markets and their interaction with macroeconomic factors.

3. To understand the differences between the five cities in terms of their institutional environment and, where possible, to assess how these differences have influenced office market performance.

1.5 Research Questions

The following research questions were developed in order to achieve the objective set for the research. There is one core question which is:

What are the key factors which influence the office investment markets in South-East Asian cities?

In order to answer this core question, there are four inter-related sub-questions.

1. What is the relationship between the institutional environment and the maturity of a property market?

2. What impact does the level of maturity of the market have on the ability to model office markets?

3. How transferable is the Western experience of modelling to South-East Asia?

4. What impact does the institutional environment have on the ability to model office markets, and what non-economic variables need to be accounted for?

1.6 Research Hypotheses

Phillips et al. (1994) argue that "hypotheses arise by guesswork or by inspiration, but having been formulated they can and must be tested rigorously, using the appropriate methodology". Robson (2002) also defines a hypothesis as the "predicted answer to a research question proposed". Hypotheses are designed to limit the scope of the enquiry to the interaction of certain variables.

The following hypotheses are tested by this research:

1. That Western modelling techniques are applicable to the South-East Asian context, and there is a positive relationship between office rental value and macroeconomic factors in South-East Asian cities.

2. That legal, social, political and economic institutions materially influence the behaviour of the office investment market.

3. That modelling of a market increases explanatory power as its institutional environment improves for investment, and as it matures.

1.7 Structure of the Thesis

This thesis is made up of three parts, comprising eight chapters in total (Figure 1-2):

Part One

Chapter One gives a brief background to the study and the reasons for carrying out this research. It also introduces the research aim, research questions and hypothesis, and describes the structure of the thesis.

Chapter Two critically reviews the issues of property market maturity, econometric modelling studies and institutional approach studies. In doing so, this chapter identifies a clear gap in existing research on South-East Asian cities, which provides direction for the research design and methodology for the thesis.

Chapter Three explains and evaluates the qualitative and quantitative methods adopted in this research.

Part Two

Chapter Four provides an overview of the general conditions of the economy and office markets in the five cities.

Chapter Five presents the empirical results from assessments of market maturity, and classifies the five cities in terms of their current levels of property maturity. This is done by the analysis of primary (questionnaire) data.

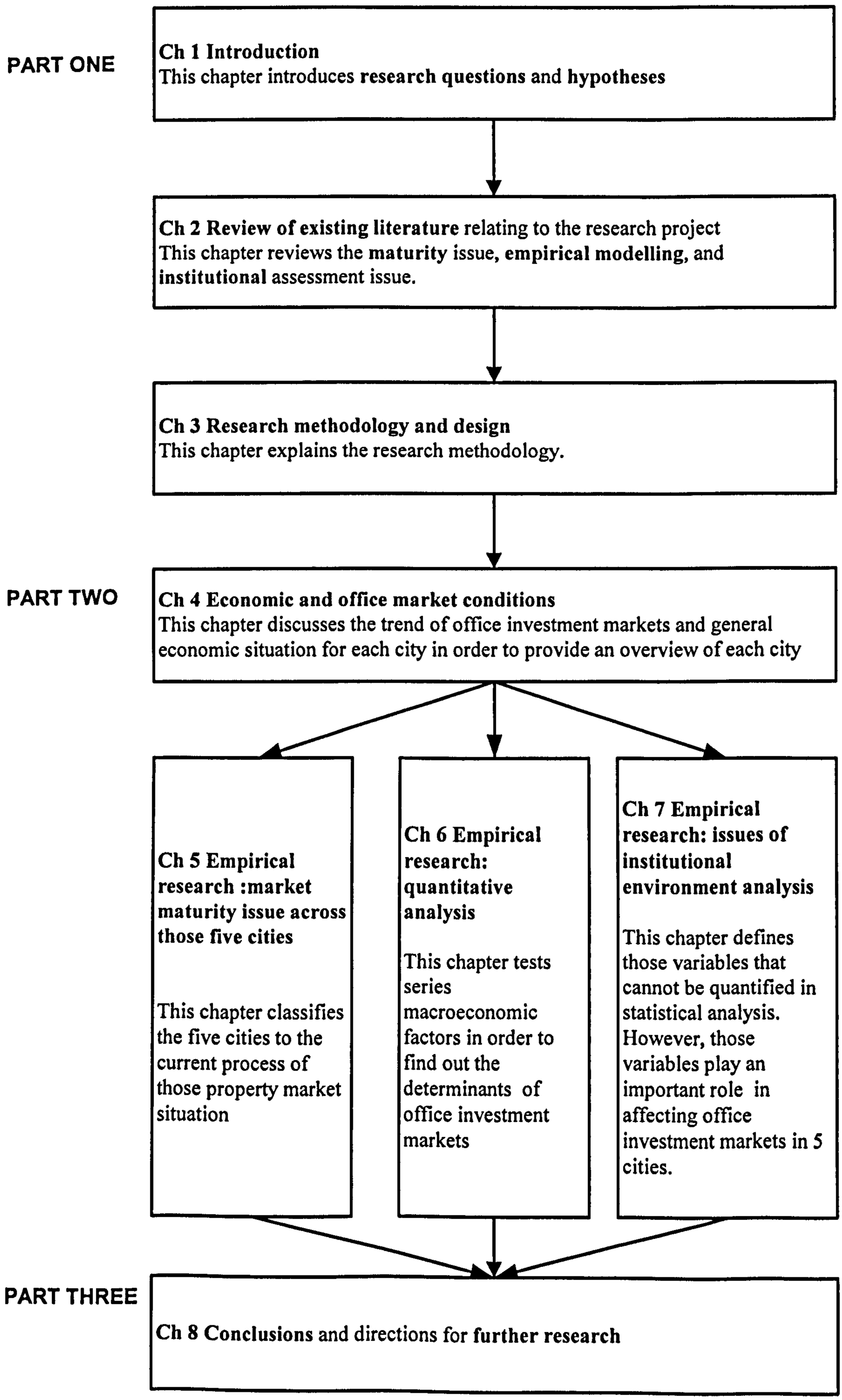
Chapter Six presents the quantitative empirical analysis of the five markets based on the results of econometric modelling. This chapter tests a series of macroeconomic factors, based on the demand and supply framework in order to find out the drivers of office rental values across the five cities, in quantitative ways.

Chapter Seven presents the results of the analysis of the institutional environment. *This chapter defines the variables that influence market behaviour but cannot be quantified by econometric analysis. This work was also carried out through analysing* questionnaire responses.

Part Three

Chapter Eight summarises the findings and conclusions, and provides directions for further research.

Figure 1-2: Structure of the Thesis



Chapter 2 Literature Review

2.1 Introduction

This chapter will review previous articles and studies relevant to the thesis. The chapter is divided into three sections: reviewing (i) empirical modelling and determinants of office markets, (ii) market maturity and (iii) institutional approach to analysing property markets.

2.2 Studies of Empirical Modelling and Determinants of Office Markets

2.2.1 Introduction

The literature on the determination of variables influencing office markets (in particular office rental value) has been written mainly by economists, statisticians, land economists, and financial professionals. In previous research, economic activities have been widely examined in the user market and development market. There are many research papers using rental level to analyse the user market; the reason being that rents are the price resulting from the interaction between demand for space and total supply of space. In an effective market, rents should move towards equilibrium, which should be the total site value plus total development value. In the short term, rents will not be in equilibrium, because there are imbalances between supply and demand for space. Existing modelling studies are based on the assumption of effective property markets. In previous research, the rental cycle has been shown to be the most consistent component of the property cycle. It also shows a more regular pattern and a more consistent response to the economic cycle than yields and development activity. Rental growth feeds capital into investment markets through incomes; and it also feeds into development markets. When rents increase, the surplus money will feed into investment capital and then impact on the development markets (RICS 1994). In this section, earlier research into market modelling, forecasting and determination of the markets values will be considered.

Existing quantitative research on office markets has produced a variety of econometric models, which have estimated rental movement of different spatial levels. Most of the research has been done in the USA, while in Europe most of the research

has been performed in the UK. There are no relevant published papers for South-East Asian countries.

In previous research (Kelly 1983, Rosen 1984, Wheaton1987, D'Arcy et al 1994, McGough et al. 1998, Keogh et al. 1998) two approaches to analysis of the markets have dominated: the multi-equation model and the single-equation model. In the former, the dependent variable in one equation might appear as the independent variable in the other equations. This approach is very popular in American literature. In the latter, there is a single dependent variable and all the explanatory variables are in one equation. This approach has been widely used in British literature.

2.2.2 Theoretical Background

Fisher (1992) presents a conceptual analysis of the factors affecting space and capital market equilibrium. (Figure 2-1). This highlights the complexity of the influences on the property market (some of the factors are peculiar to the US property markets). His key conclusion is that an economic analysis of the property market is based on the relationship between the space market and capital market. The left-hand side of the figure shows the factors of demand and supply in the space market, which determine the space equilibrium. The right-hand side of the figure demonstrates the demand and supply factors affecting capital market equilibrium. In the space market equilibrium, actual or expected rental values act as a cash flow to the capital market - such as mortgage or rental payments. In other words, property values determined in the market for space underpin investment values. Rental value in both long and short term markets for space is determined by the interaction of demand and supply. In the capital market equilibrium, the value of property investment in the long term should reflect its replacement cost, and consequently rents determined in the space market should provide a market rate of return on that replacement cost. The Fisher framework can be used to examine the impact of an exogenous shock to either the space market or capital market. Changes in rental value can be caused by change in either the space or capital markets.

The Fisher model illustrates the interrelationships between the space market and capital market. It also shows the relationship within the elements, such as supply, and rental changes within the sub markets. In this way, his framework provides a fundamental theory of multi-equation modelling.

Higgins et al. (2000) provides a simple diagram (Figure 2-2) to explain the determinants of the commercial markets which, corresponds to the conceptual work of Fisher (1992):

Keogh (1991) constructs a real property model that provides a comprehensive framework for analysis of the commercial property market (Figure 2-3).

He shows that there are three interlinked sub-markets: user, investment and development. The central theme of his work is the division of the interests of existing property stock into owner-occupied and pure investors' interests. Pure-investors' interests are divided between the rights of user and investor. The dynamics of change depend on the process of demand and supply interaction in the markets for owner and investor interests, with changing conditions in one of the sub-markets having effects elsewhere.

In his model of the property market relationship, each component in the market is determined by the interaction of demand and supply. In theory, trends in the user market would feed rapidly through to the investment market, and from there into the determination of development activity. At the same time, the property investment market is subject to wider asset market influences which affect the required rate of return. Also, there cannot be any new supply into the markets in the short term. Therefore, when there is a benefit in the market, the owner-occupied interests will be transferred to the investment side. However, in the long-term adjustment, there will be a sufficient time for developers to act on a signal sent from the user and investor markets. His framework (Figure 2-3) gives a theoretical background of single-equation modelling.

Source: Keogh (1991)

From the modelling perspective, property markets should ideally be in a situation of full equilibrium: the three sub-markets must be in balance. However, this ideal

situation does not exist in the real property market (see Section 2-3). The basic idea of modelling property markets stems from the interaction of demand and supply either in space markets (user and development markets) or capital markets (investment markets) (Ball et al. 1998, Keogh 1991). When disequilibrium occurs in the markets, property rental value/price will change, until the demand and supply reach a new equilibrium point.

Office market behaviour is the manifestation of the macro demand focus on a particular location. Changes in the relationship of supply and demand will directly affect the market behaviour of the participants in that market, and any changes will be reflected in price and rental movements and the volume of transactions.

In modelling, demand-side variables usually represent the user market; supply-side variables usually represent the development market; and yields normally represent the financial markets. Researchers usually structure the models by adding different variables. Mitchell et al. (1997) also mention that "*forecasts can vary because of marked differences in the structure of econometric models the forecasters develop, the statistical methods they choose, the data they utilise and so on*". Data availability is a key factor in choosing the most suitable method for examining the markets. Regression procedure is typically estimated between dependent and independent variables (Wong 2002).

2.2.3 Multi-equation Review

The multi-equation model is one way of assessing the property cycle: a way of forecasting rents and vacancy rates. This method is very popular in the USA. It looks at the slowness of rents to adjust to changes in vacancy rates and the price signals given to developers (Rosen 1984, Hekman 1985, Wheaton 1987, Hakfoort 1994, Wheaton et al. 1997). They construct several equations to explain the movement of property markets. Their central idea is that as economic activity declines, demand for office space drops and the vacancy rate increases; but when the economy grows rapidly, rents and construction are slow to respond. This is also known as "*rental adjustment*".

Multi-equation modelling operates so that dependent variables in one equation may appear as explanatory variables in other equations; that is, none of the variables can be determined endogenously. In these studies, equations represent demand, supply and rents linking with a number of endogenous and exogenous variables. The exogenous variables normally include employment measures, construction costs, interest rates and tax rates. The endogenous variables are development, rents, absorption rates, floor space, and vacancy rates. These models are widely used by American researchers, and cover development markets and some user markets.

For these American researchers, a key point is the assumption of a natural vacancy rate. This assumption is similar to the concept of a natural rate of employment in labour market studies. The rationale for the existence of a natural vacancy rate is that property developers and property owners, aware of the binding nature and the length of office leases, *"withhold vacant office space in inventory to capitalise on opportunities to supply at higher rental during periods of increased demand"* (Shilling et al. 1987). Deviations away from the natural vacancy rate have been used as a measure of the short-term demand and supply conditions in the office market and as a determinant of rents. If demand for space is high and the actual level of office vacancies is below the natural vacancy rate, upward pressure will be exerted on rents. However, if the number of vacancies is higher than the natural vacancy rate, rents will face downward pressure. Therefore, rents move more rapidly the further the actual vacancy rate moves away from the natural vacancy rate in either direction. Rosen (1984), Hekman (1985), Shilling et al. (1987), and Wheaton and Torto (1988) use this idea to research aspects of the office user market and development market. In the UK, Hendershott et al. (1996) use the same idea of examining London office markets and Hendershott (1996) for Sydney office markets.

Multi-equation modelling is more theorised than single-equation modelling. However, there are no consistent forms in this area. If certain functions of the markets are not described adequately by equations, the result can be spurious, as observed by D'Arcy et al. 1998, Wong 2002.

The existing literature of multi-equation modelling has certain characteristics (Kelly 1983, Rosen 1984, Hekman 1985, Shilling et al. 1987, Wheaton 1987, McClure 1991,

Pallakowski et al. 1992, RICS 1994, Hendershott 1995, Hendershott et al. 1997, MacFariane et al. 1999, RICS 2000, Parker et al. 2001, Hendershott et al. 2002):

- The models usually comprise two to three equations which include demand, development and rental change. The equations consist of some endogenous variables, such as absorption, rent, completed development, vacancy rates, and floor space; and also a number of exogenous variables, such as: the employment rate, interest rate, rate of finance, construction costs and inflation rate.
- Rental changes are always modelled by the vacancy rates with some variant of gaps, and the variable is always significant in the model.
- The development (supply side) model is mainly driven by the profitability formulation. Vacancy rate is always significant in the model.
- Some of the American studies (Kelly 1983, Wheaton et al. 1983) suggest that measures of economic activity are not all equally effective in explaining office rental values, but disaggregated service sector employment variables appear to be more significant.

In their results, the vacancy rate is always significant among those studies, and plays the key part of the analysis. However, the use and the assessment of a natural vacancy rate is another issue to be solved. Most of the existing literature uses the average of previous actual vacancy rates as the natural vacancy rate, which is doubtful in theory, particularly for the less developed or volatile markets.

There is no relevant literature using multi-equation modelling in South-East Asian office markets. This is possibly a result of poor data availability. The multi-equation model requires more detailed data about the property market itself, such as vacancy rates, absorption rates, and regional property data, which are not available for South-East Asia. In addition, the multi-equation models require longer time-series data to run the analysis, which also are not available in South-East Asia.

The multi-equation model does not suit an office investment market investigation in South-East Asia, because of the poor quality and lack of availability of the data. In

addition, one of the aims of this research is to test whether there is a relationship between office investment markets (rents) and macroeconomic factors in South-East Asian office markets, but the multi-equation modelling (rental adjustment process) could not really provide the answer, because it mainly focuses on internal movements, rather than investigating economic influences.

2.2.4 Single-equation Review

The single-equation method is generally trying to assess the relationship between economic activity and office rental markets by using a demand and supply framework. Single-equation modelling uses a single dependent variable and all the explanatory variables in one equation. The theory behind this method is based on the interaction of demand and supply. Mitchell et al. (1997) argue that "*rental growth represents the most common area of work and is the activity best suited to econometric and statistical analysis*". They also argue that "*yields reflect investors' expectations and sentiment, are prone to random movements, and may not be best analysed quantitatively*". As a consequence, office rental value is the most common variable to model for the office investment market. Rental values in the short term are the result of disequilibrium in real property markets. A model of rent determination needs to incorporate both demand and supply influences on rents. A single-equation model of office rent determination incorporates variables that capture demand and supply of office space. Variations in office rents will reflect changes in market conditions caused by the interaction of those demand and supply variables, generating the movement of the rental values. In the majority of empirical work on rent determination, the model used takes the form of an equation where both demand and supply determinants are included (Giussani et al. 1993, Gardiner et al. 1988, 1991; Dobson et al. 1992, D'Arcy et al. 1994, McGough et al. 1995, D'Arcy et al. 1998, McGough et al. 1998).

This method is very popular among British researchers. The concept is based on the theoretical underpinning that quantities adjust to changes in prices; rents follow the model by equating the quantity of space supplied with demand. For example, if demand exceeds supply, the prices/rents will increase, and vice versa. Various drivers of the demand for office space are regarded as important factors in the determination

of real rents (Wong 2002). This type of work assumes that an office market is efficient, and office rental value could be decided by the interaction of demand and supply.

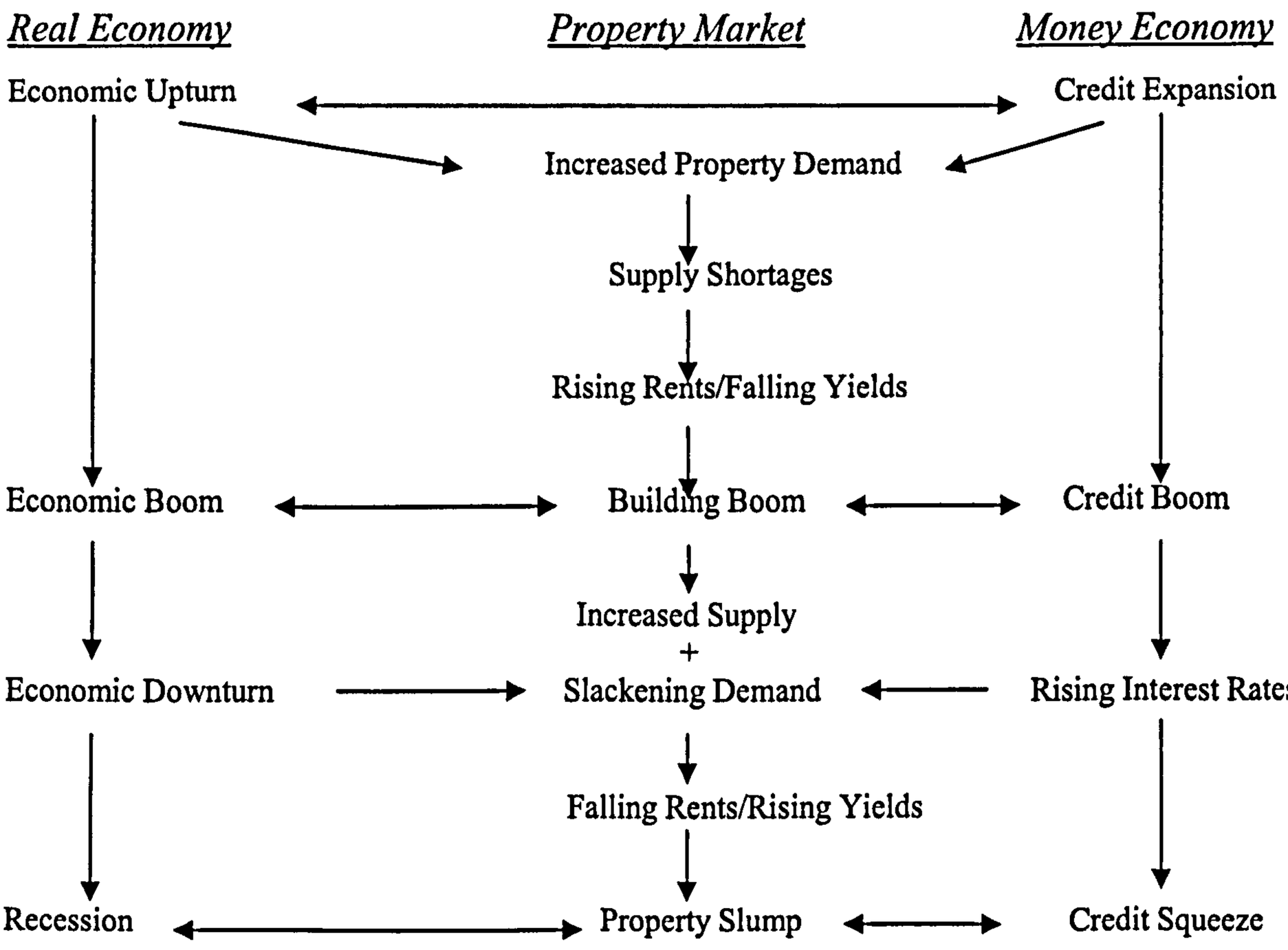
Previous empirical studies (Giussani et al. 1993a, 1993b, Gardiner et al. 1988, 1991, Dobson et al. 1992, D'Arcy et al. 1994, McGough et al. 1995, D'Arcy et al. 1998, McGough et al. 1998) in this area have examined a wide selection of demand and supply proxy variables in an attempt to predict office market performance. Office rental value is the most common variable for modelling and it can be modelled by using the theoretical demand-supply framework as mentioned earlier, which has successfully employed a wide range of variables to proxy demand and supply influences, even if the availability and reliability of the data can be questioned. Various studies exist for single countries, particular European cities or office sectoral market performance, generally focussing on a set of common variables in the determination of rental values.

Historical studies have worked a similar range of variables to catch demand for office space. Economic activity is generally approximated by GDP-based measures and there is a strong relationship between service sector employment and the level of office-based activity. There is also a positive relationship between real interest rates and rental values for all types of commercial property. Economic uncertainty defined in terms of the spread of changes in GDP over successive quarters has been identified as having a clear and significant relationship with office values (Giussani et al 1993a, 1993b).

The assessment of business cycles has been widely developed since the 1930s before property cycle modelling (Burns et al. 1946). In the UK, there has been some empirical research to test development cycles since the 1980s (Barras 1983, Barras 1984, Barras and Ferguson 1985, Barras and Ferguson 1987a.b., Barras 1994, RICS 1994, and Ball 1994, McGough et al. 1995, Keogh 1995). RICS (1994) provides the following definition of the property cycle "*Property cycles are recurrent but irregular fluctuations in the rate of all property total return, which are also apparent in many other indicators of property activity, but with varying leads and lags against the all-property cycle*".

Barras (1994) presents a conceptual framework of how the property cycles work which demonstrates the relationships between the property market, real economy and money economy (Figure 2-4). In Australia, Higgins et al. (2000) also summarise the process of economic shocks and the business cycle (Table 2-1), and also states that movement in property cycles mainly results from the disturbance of economic activity or economic shock.

Figure 2-4: How the Building Cycle Works



Source: Barras (1994)

Several studies (Barras 1994, RICS 1994) indicate the existence of a relationship between business cycles and property cycles, which are driven by macroeconomic activity. Office markets are dependent on demand levels of the economic activity for substance. Many reports have recognised the various macroeconomic and capital market links to commercial market performance, particularly in the UK, Australia and USA empirical studies (McCue et al. 1987, Wheaton and Torto 1988, RICS 1994, McGough et al. 1995, Keogh 1995, D'Arcy et al. 1997, Ball et al. 1998, Pyhrr et al. 1999, Higgins et al. 2000).

Table 2-1: Economic Shocks and the Business Cycle

Economic Disturbance	Influencing the Economy's Factors Response	Outcome
1. Domestic Financial shocks 2. Drought and other natural phenomena affecting primary production 3. Labour supply disturbance (e.g., reduction in hours worked per worker) 4. Institutional wage adjustment 5. Underlying total factor productivity changes 6. Changes in public and private investment (e.g. as a consequence of mineral discoveries) 7. Commodity price fluctuations 8. Changes in world real interest rates and equity prices 9. Changes in export demand	1. Destabilising factors: • Business investment response • Stock/inventory investment • Construction activity 2. Stabilising factors: Product market adjustment • Relative and aggregate price movement • Import response • Savings response • Automatic public sector stabilisers (cyclical changes in expenditure and taxation receipts) • Changes in fiscal and monetary policy • Financial market adjustment • Interest rate adjustment • Exchange rate adjustment • Labour market adjustment • Real wage adjustment	Recurring deviations from the trend in aggregate economic activity and the rate of growth of activity

Source: Commonwealth Treasury of Australia (cited in Higgins et al. 2000)

2.2.4.1 Key Literature

Most published literature of the single-equation model was written in the late 1980s and published in journals and the proceedings of international conferences. The search began with the indexes of several property journals across the world, such as Journal of Property Research, Journal of Property Valuation and Investment, Journal of Property Finance, Journal of Real Estate Literature, PRRES Journal, Journal of American Real Estate and Urban Economics Association, Environment and Planning Journal, Journal of Finance and Journal of Real Estate Research. In addition, an internet search of international real estate society conferences (RICS: Cutting Edge, PRRES: PRRES annual conference: ERES: ERES annual conference and AREUEA: AREUEA annual conference) also helped in locating unpublished articles presented at those conferences.

Since the mid-1980s, commercial property forecasting services have relied on single-equation models. Given the historically stable relationship between real rent levels

and demand-side and supply-side variables, commercial property performance can be predicted by the movement of activity of the economic sectors. Previous research in Australia and in the UK has focussed on linking commercial property with a variety of underlying economic factors (Giussani et al. 1993a, Giussani et al. 1993b, RICS 1994, Hendershott 1995, Keogh et al. 1998, McGough et al. 1995, 1997, Tsolacos 1995, D'Arcy et al. 1997a, 1997b, Higgins et al. 2000). In searching through previous literature for South-East Asian cities, not a single relevant research paper was found; the key literature review will therefore focus on relevant published papers.

Gardiner and Henneberry (1988) were aware of the lack of research papers to explain the determinants of the office markets in the UK. Therefore, they attempted to perform research into rent determination in the standard planning regions across the UK and did so using spatially disaggregated annual data for the period 1977 to 1984. They employed cross-sectional and time series analysis to model regional forecasting by applying demand-supply specifications. They found that GDP and floor space are the most important variables affecting regional rental movement. They also found that different areas had different results and the model could not explain all the rental movements in the different regions across the country.

In 1991, they used habit-persistence [2-1]theories to test the rental movement in those declining areas. As a result, they found that past rental value does affect current rental value with two years' lag. The two papers offer a different view by breaking down the national level into smaller regions. They also found that there are differences in declining areas and expanding areas which make them suitable for different methods to be used. McGough and Tsolacos (1995) used ARIMA models to investigate office markets from 1977 to 1993. The result was also consistent with the work of Gardiner et al. (1991).

The work of Giussani et al. (1993a), which examines rent determinants across European cities, can be used as a framework to examine the South-East Asian cities.

[2-1] Habit-Persistence theory means that the economics for variables will be influenced by previous values. For example, the habit-persistence theory of consumption suggests that consumption depends on the previous consumption

They examined the relationship between rental value and economic activity by using cross-sectional and time series analysis (OLS methods). Again, this research is based on the demand and supply framework. However, the study ignores the supply-side variable, because the data are not available across Europe.

The authors assert that the demand-side variable can effectively explain office rental markets across Europe. In spite of limited data, the results show that GDP and unemployment rates play an important part in determining office rents. However, if supply-side variables had been available and included, the model would have been more theoretically robust.

D'Arcy et al. (1994) followed up this work by examining the determinants of office rental values in twelve European cities over the period 1982-1993. Owing to the limited supply-side data for the European cities in question, their model only incorporates demand-side variables: GDP, GNP, service sector output, service sector employment and unemployment, share price, the composite leading indicator, Treasury Bill yield, real bond yields, and real interest rates.

The result is consistent with the results obtained by Giussani et al. (1993a, 1993b). They conclude that GDP and unemployment rates are the most important common determinants of changes in rental value across those twelve cities. They also suggest that larger markets (in terms of total office stocks) are better modelled by the standard explanatory variables, which appears to be consistent with the American study (Pollakowski et al. 1992).

After finding that market size might affect the determinants of office rental values, D'Arcy et al. (1997a) examined the relationship between office rents, national economic conditions, market size and the measure of economic growth and changes in 22 European cities' economies over the period 1982 – 1994 by using the time series cross-section methodology. It was the third published study to examine regional European markets. The result shows that real GDP, and interest rates are significant for changes in European rental markets. In their model, they not only included national factors but also regional/local factors (market size, measure of economic growth and changes in the local economy), as in the work of Gardiner et al. (1988).

Yet the result still shows that local factors seem less influential in European cities relative to national factors. They again missed supply-side data, because of the lack of availability and poor quality of data.

Keogh et al (1998) modelled the user, investment, and development elements of British office markets. Their work was the first research paper to examine three sub-markets: user, investment and development. They used econometric models to estimate rents in user markets, capital value for investment markets and new volume of new office space for development markets.

In the background of their study, the theory is still based on Keogh (1991)'s framework (Figure 2-3) in terms of demand and supply in three sub-markets (See Section 2-2-2). In the user market, they established that GDP, employment in the banking, finance and insurance sector, and volume of new office building are all statistically significantly important to rental movements. The supply-side variable in the user model also shows a significant impact. In the investment market, the result is not very convincing. In development markets, rental movements, capital value and interest rates are all significant to the development activity in terms of the model.

Their research shows the first empirical investigation of the demand and supply framework in all three sub markets. The result for the investment market does not have a satisfactory result, indicating that yield is very difficult to measure. However, office rental value shows the best results through their work, which confirms the argument by Mitchell et al (1997).

In other single-equation modelling studies, Dobson et al. (1992) provided an insight into the determination of office rent in certain regions across the UK. Surprisingly, the employment rate does not have significance in their findings but interest rates and past rental value affect current rental value. In their research, only demand-side variables were used in testing the determination of rental levels; which is weak in theory (because no supply-side variable is mentioned), and they also did not make a clear relationship between owner-occupied and rented markets. McGough and Tsolacos (1994a, 1994b) used vector autoregressive (VAR) and Auto Regressive Integrated Moving Average (ARIMA) to predict the short-term office rental value

forecast in the UK. They emphasised the importance of the service sector and employment in banking, insurance and finance in office rent modelling.

Other research papers examine individual markets and offer additional insights into factors affecting office rental movements (McGough et al. 1998, D'Arcy et al. 1998). Both of the papers find that GDP, and employment rates are important factors. Also there are some lagged effects on office space affecting rental movements (Keogh et al. 1994, McGough et al. 1998, D'Arcy et al. 1998). There are also a few other studies employing single-equation modelling in Australia and USA, such as Brennan et al. (1984), Newell et al. (1996), Sivitanidou (1997). They also use macro, financial and spatial variables to explain movements of the property markets, which have various degrees of success in explaining rental movements.

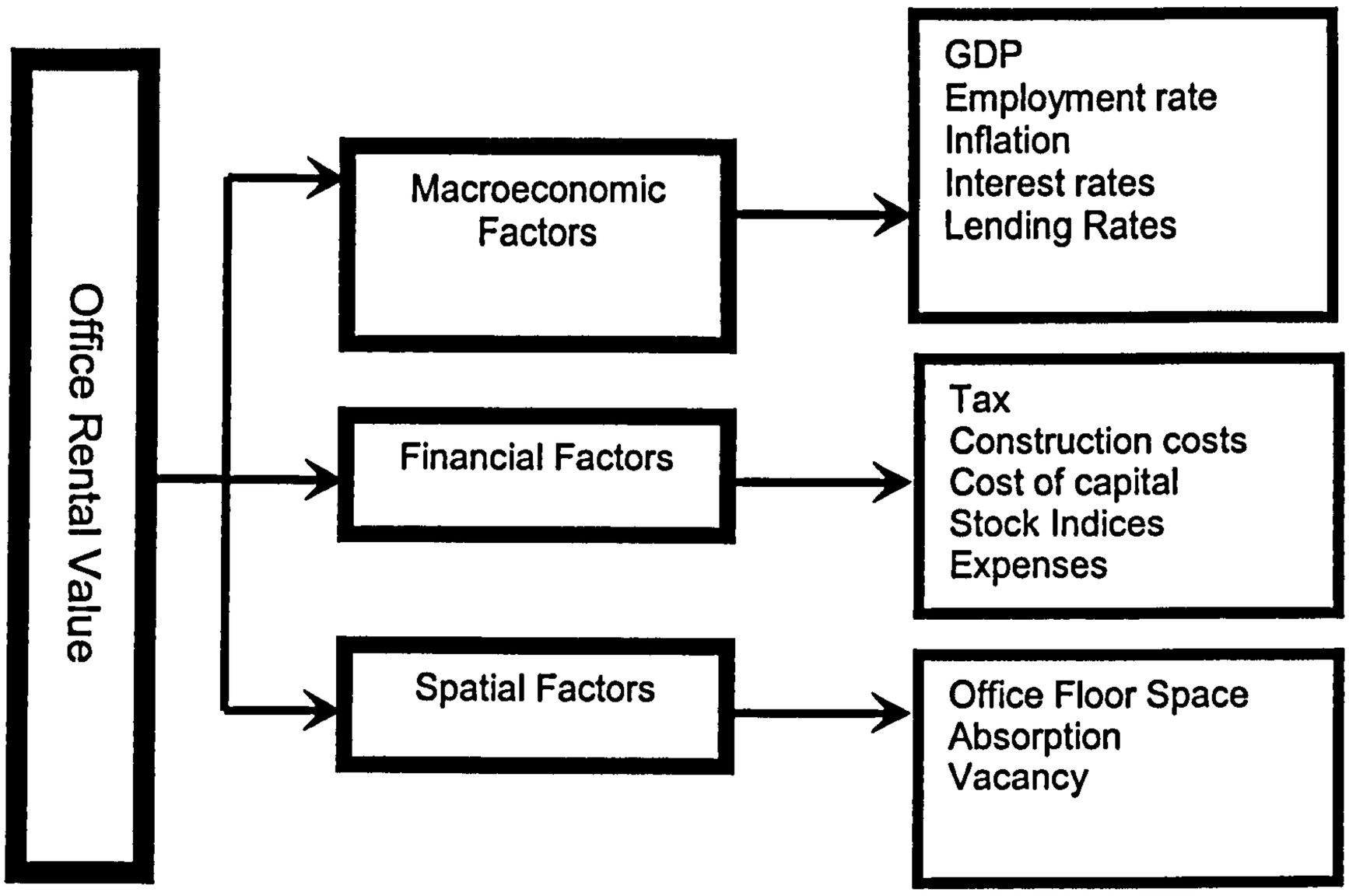
2.2.4.2 Summary of Single Equation Modelling Studies

Some institutions and property consultants have been involved in modelling and forecasting rental values but relatively little has been published in the past. There are more single-equation models than multi-equation models, mainly because of data availability. In general, Ordinary Least Square methods (OLS), based on key macroeconomic variables, have provided good results over limited periods of time. Office rental values are usually investigated. Previous research was all based on the demand-supply framework rather than the rental adjustment process, in order to catch the effects of macroeconomic factors on rental movements. However, there are some downsides of single-equation modelling, such as overlapping demand and supply from proximate centres; the availability and quality of the data; the quality and absence of supply variables and correlation between independent variables leading to misinterpretation.

2.2.5 Variables Chosen

Previous studies (both single-equation and multi-equation modelling) have incorporated macro, financial and spatial variables into their equations. (Figure 2-5)

Figure 2-5: Conceptual Framework of Determinants of Office Rental Value



In multi-equation modelling, the variables used are endogenous and exogenous. The most important variables in some equations are natural vacancy rates and rental value, because multi-equation modelling concentrates on the rental adjustment process to produce the model. Both vacancy rates and rental values are endogenous variables. This kind of research considers that macro economic factors do not necessarily affect the office market much (Wheaton et al. 1987).

In single-equation modelling, all the explanatory variables are exogenous. These models generally require quantitative data to formulate the model, except Brennan (1984) who use some qualitative variables, such as building age, to explain rental movement.

The empirical studies point to a conceptual framework containing broad groups of influences on office rental markets, which are macro, financial, and spatial factors. Summarising previous research, single-equation models usually use macro economic factors, such as employment rate, GDP, interest rates and so on. Some use financial factors to model, such as stock indices and yield, even though most of the time they do not show significant signs of affecting rental value.

We now turn to discuss the significant variables from previous studies. These are: real GDP, service sector output, employment/unemployment rates, and interest rates/lending rates from the demand side; changes in office floor space from the supply side; and vacancy rates from multi-equation models as an endogenous variable.

- **Real GDP**

The variables affecting the demand-side are most likely to be economic-based variables. These economic variables are normally approximated by real GDP, and employment rates in the service sector (D'Arcy et al. 1998, D'Arcy 1998). GDP normally represents general economic conditions, as does the unemployment rate. In single-equation research, the real GDP figure remains a constantly significant influence on office rental markets. Barras (1983) mentioned that real GDP is the most appropriate and widely used demand-side measurement of an aggregate level, which gives a broad indicator of office activity, including both manufacturing and service sectors of the economy. This assumption gains considerable support from empirical studies (Gardiner et al. 1988, Dobson et al. 1992, Giussani et al. 1993a, 1993b, RICS 1994, D'Arcy et al. 1994, McGough et al. 1995, Chaplin 1997, Keogh et al. 1998, D'Arcy et al. 1998, McGough et al. 1998, Higgins et al. 2000, MacFarlane et al. 2000, Parker et al. 2001).

- **Service Sector GDP (Output)**

Changes in the level of service sector output are expected to reflect trends in particular office-based industries which have generally been considered to be the most dynamic in office rental determination modelling (Keogh et al. 1998). Some studies (D'Arcy et al. 1994, McGough et al. 1998, Chin 2003) regard service sector GDP as the proxy variable for trends in demand for office based services. High service sector output will lead to rental value increase, because of the good economic condition of those office-based industries (D'Arcy et al. 1994, McGough et al. 1998, Chin 2003). Because the vast majority of service sector activity takes place in office environments, service sector output might also be associated with the demand for office space. This is especially so, as the level of service sector output increases, it is more likely that service sector employment will follow suit due to the relatively labour-intensive nature of much of the activity in this sector (Giussani et al. 1993a, 1993b).

- **Employment/unemployment rates in service sector**

Employment/unemployment rates normally proxy for economic conditions, and the service sector employment rate has close links with office rental value according to previous studies (Kelly 1983, Hekman 1985, Hakfoort 1994, Gardiner et al. 1988, Dobson et al. 1992, Giussani et al. 1993a, Giussani et al. 1993b, D'Arcy et al. 1994, McGough et al. 1994, Hendershott et al. 1996 Keogh et al. 1998, D'Arcy et al. 1998, Chin 2003*)*. It is believed that the majority of service sector activity takes place in an office environment. The demand for office space is associated with employment level changes. The demand for office space is a derived demand reflecting the demand for the services produced by office-based activities. Changes in the level of employment in the service sector are expected to reflect the trends in particular office-based industries which have generally been considered to be most dynamic (Giussani et al. 1993a, Giussani et al. 1993b, Chaplin 1997, McGough et al. 1998). When the employment of the service sector rises, it increases the demand for office space and upward pressure on rental values will be exerted.

- **Interest rates/lending rates**

Interest rates and lending rates provide an indication of the availability and cost of capital, and are also considered as predictors of monetary policy (Chang et al. 1999). There are some articles which use interest rates as a variable to examine office rental movements (Giussani et al. 1993a, Hakfoort 1994, D'Arcy et al. 1994, Keogh et al. 1998, Chaplin 1997, Kim 1999, Chin 2003). High interest rates and lending rates will discourage development decisions, as they affect the cost of borrowing. Therefore, high interest rate and lending rate will cause rental value increase. Conversely, lower interest rates may make it more appealing for developers to invest in more offices (as the returns may be more attractive than a low rate from the bank, and borrowing costs are low), but over time this can lead to supply increasing faster than demand, and so there is a downward pressure on rents (the excess supply situation) (Dobson et al. 1992). However, none of this empirical research shows that interest rates have a significant effect on rental value, except Chin's (2003) study.

The main supply side variable is office floor space.

- **Office floor space**

In some studies, the supply-side variables are omitted, because of problems with data availability. There are a number of supply-side variables used to investigate the influence on office rents in the existing literature. They mainly focus on office floor space and such issues as the changes in total stock of office space (Gardiner et al. 1988, Chaplin 1997, Chin 2003), the volume of new office construction (Keogh et al. 1998, D'Arcy et al. 1998), the level of new orders for office space (Giussani and Tsolacos 1995, Chaplin 2000), the completion of office and retail space (Keogh et al. 1998), and changes in the volume of office building output (McGough et al. 1994a, 1994b). Although some of the measurements are not perfectly represented by supply-side variables, the use of a more appropriate variable is restricted by data availability. Some empirical results demonstrate that office floor space does have significant effects on office rental markets but indicate that it is less influential than demand side variables (Hekman 1985, Hakfoort 1994, Gardiner et al. 1988, RICS 1994, Keogh et al. 1998, D'Arcy et al. 1998, Chin 2003).

- **Vacancy rates**

Vacancy variables can be regarded as endogenous variables in rental equations. It means that they are determined by other common variables, and as a consequence any results obtained may be dubious. Hence, it is not suitable to add vacancy rates into the single-equation model. However, most of the studies in the multi-equation have taken place using an average rate as the natural vacancy rate.

There are more than 20 variables which have been tested as explanatory variables in the existing literature in the past 20 years (Table 2-2). The variables matrix shows that the majority of the single-equation models attempt to use macro factors and spatial factors to examine office rental movements. Multi-equation models are more likely to use spatial factors and financial factors to explain the office rental adjustment process.

Table 2-2: Variables Matrix

Explanatory Variables:		Multi-Equation/ Single Equation	GDP	GNP	Employment Rate or Unemployment rate (Total/Service Sectors)	Interest rates (long term or short term)	Inflation	Economic Uncertainty	Income	Population
Authors	**Year**		**MACRO FACTORS**							
Kelly	1983	M			*					
Rosen	1984	M	*				*			
Hekman	1985	M	*		*					
Shilling, Sirmans, Corgel	1987	M			*					*
Wheaton	1987	M			*	*				
Gardiner and Henneberry	1988	S	*		*				*	
Wheaton and Torto	1988	M								
McClure	1991	M		*	*	*				
Gardiner and Henneberry	1991	S								
Dobson and Goddard	1992	S			*	*				
Pollakowski, Wachter, Lynford	1992	M			*					
Giussani, Hsia, Tsolacos	1993a	S	*		*	*		*		
Giussani, Hsia, Tsolacos	1993b	S	*		*	*		*		
Hakfoort	1994	M		*	*	*	*			
D'Arcy, McGough, Tsolacos	1994	S	*	*	*	*				
McGough and Tsolacos	1994	S	*	*				*	*	
McGough and Tsolacos	1995	S								
Hendershott, Lizieri, Matysiak	1996	M	*	*	*					
Newell and Higgins	1996	S	*				*			*
Chaplin	1997	S	*		*	*	*			
D'Arcy, McGough, Tsolacos	1997	S	*			*				
Wheaton, Torto, Evans	1997	M			*	*				
Keogh, McGough, Tsolacos	1998	S	*		*	*				
D'Arcy, McGough, Tsolacos	1998	S	*		*					
McGough, Olkkonen, Tsolacos	1998	S	*		*					
MacFarlane and Moon	1999	M			*					
MacFarlane and Moon	2000	M			*					
Parker, MacFarlane, Whiley	2001	M	*		*		*			

Table 2-2 Continued:

Explanatory Variables:		Office-floor Space (Total/New /Changes)	Vacancy	Absorption	Past Rental Value	House Index	Share Price	Bond and T-bill Yields	Construction Cost	Cost of Capital	Operating Expenses	Yield/ Capital value	Tax
Authors	**Year**	**SPATIAL FACTORS**			**FINANCIAL FACTORS**								
Kelly	1983	*	*	*									
Rosen	1984	*	*		*				*	*			*
Hekman	1985		*		*				*	*			
Shilling, Sirmans, Corgel	1987		*		*						*		
Wheaton	1987	*		*	*				*	*			
Gardiner and Henneberry	1988	*											
Wheaton and Torto	1988		*		*								
McClure	1991	*	*		*								
Gardiner and Henneberry	1991				*								
Dobson and Goddard	1992					*							
Pollakowski, Wachter, Lynford	1992	*	*		*				*	*			
Giussani, Hsia, Tsolacos	1993a												
Giussani, Hsia, Tsolacos	1993b												
Hakfoort	1994	*	*		*				*				
D'Arcy, McGough, Tsolacos	1994						*	*					
McGough and Tsolacos	1994	*					*	*					
McGough and Tsolacos	1995				*								
Hendershott, Lizieri, Matysiak	1996	*	*	*	*				*	*	*		
Newell and Higgins	1996						*	*	*				
Chaplin	1997	*	*			*			*				
D'Arcy, McGough, Tsolacos	1997	*											
Wheaton, Torto, Evans	1997	*	*	*	*				*	*			
Keogh, McGough, Tsolacos	1998	*					*					*	
D'Arcy, McGough, Tsolacos	1998	*											
McGough, Olkkonen, Tsolacos	1998	*											
MacFarlane and Moon	1999	*	*	*									
MacFarlane and Moon	2000	*	*	*									
Parker, MacFarlane, Whiley	2001				*	*						*	

2.2.6 Summary of Modelling Studies

From the literature review, it can be seen that single-equation models have dominated this area of research in Europe, particularly in the UK. This method mainly examines the user and the development markets, apart from Keogh et al. (1998) and Hetherington (1988) for the investment market. Models of the user market are mostly driven by user requirements for space and the cost of the requirement, with the favourite variables being GDP, the employment rate and interest rates. Development models are based on the profit from new development, with the favourite variables being the new volume of office space and the cost of finance. However, land value is omitted from these models and there is no direct link between these models and the financial market, even though some authors use interest rates as a measure of the financial market. It is not surprising that in these studies there is a strong relationship between service sector employment and the level of office-based activity. The majority of service sector activity takes place in an office environment, and changes in service sector employment are most likely to affect the demand for office space.

Multi-equation models are employed mainly in the user and development markets. They consist of three principal equations: development, demand and rental adjustment. These models contain both endogenous variables such as rents, construction orders, vacancy rates, and floor space; and exogenous variables such as cost of finance, interest rates and employment rates.

Multi-equation modelling tends to employ the concept of a natural vacancy rate to model the dynamics of office markets. In single-equation modelling, rental modelling has not relied on this concept because of the unavailability of good quality data on vacancy rates. Studies of rental models in single-equation modelling, both at national and regional level, have used multiple regression models which link demand and supply variables of the markets or time-series models (Barras et al. 1987, Dobson et al. 1992, Gardiner et al. 1991, RICS 1994, 2000).

Because journals and conference papers sometimes do not give a detailed description of the choice of variables, the reader cannot always gain a clear view of the concept. Therefore, it is difficult to replicate the model from one empirical study to another. In

addition, some researchers search for the most suitable model; their aim of the model is to fit the primary data rather than the theory. McNamara (1991) argues that "*the ability to explain forecasting models and their results by reference to real world processes (i.e. relating to known and understood causal relationships) is essential for the long term credibility of an explicit approach to forecasting rental growth*". This statement confirms the importance of the relevant data availability.

Choosing between different models combines theory with the results of specified estimation. From the above studies, it can be seen that the specification of the model and the variables used in office market modelling vary to a degree across geographical areas. This could be the result of employing different methodologies in the empirical investigations, but the differences in the result might also reflect the diverse economic environment affecting the office market. The European comparative studies of office rents in major cities have identified common factors in the determination of rental values, but also highlighted differences in the determinations of rents across cities, owing to data availability (Giussani et al. 1993, Giussani et al. 1993, D'Arcy et al. 1997). In the USA, similar comparative research has been investigated (Hekman 1985, Wheaton 1987, Pallakowski et al. 1992, Shilling et al 1987). There is no relevant comparative research covering the South-East Asian region. The lack of comparative South-East Asian analysis probably results largely from the lack of suitable property information and data (quality and long period of data) (Lim 2000, Chin 2003).

Poor data perennially hamper the work of the property market forecaster in the UK (Mitchell et al. 1997). Previous studies indicate that, to date, not a great deal of empirical work has been done on the modelling of rents of office markets, and South-East Asian office markets are not even mentioned. The results of published studies are mixed. This may be due to poor quality data, poor modelling frameworks or both. In South-East Asia, comprehensive data on rent are not generally available before the late 1980s; and where available, it is usually only annual data. Higher frequency property market data are available from later dates but corresponding supply and regional economic data are not. This situation might explain the lack of published articles in this area for South-East Asia.

The first hypothesis of this thesis is to test whether or not there is a positive relationship between office investment markets (rents in this study) and economic factors. In terms of the hypothesis, the exogenous variables will be tested. Owing to data availability and the concept of the thesis (rather than the rental adjustment process), single equation modelling will be adapted. McGough et al. (2003) argue that best fit models do not benefit forecasting accuracy and the forecasting ability of models is not generally more impressive than a naïve competitor. McNamara (1991) also mentions that using qualitative adjustment would also benefit the modelling results.

McNamara (1991) argues that how to treat "*soft*" variables is one of the problems in modelling studies, such as political factors, urban planning, or the development process. He also advocates that all forecasting models generated should undergo testing against available evidence, both quantitative and qualitative. It is highly unlikely that accurate forecasting will even be possible without looking at some level of subsequent qualitative review.

Apart from the data constraints problem for the existing modelling framework, the assumption of modelling studies is another problem. Most of the modelling framework is based on the demand and supply framework and also assumes an efficient market. However, the assumption of market efficiency is unrealistic for the office market. The next section will discuss the perfect competition market and the concept of market efficiency.

2.3 The Concepts of Perfect Competition Market and Market Efficiency

According to economic theory, the price of goods should be fully determined by demand and supply in a "*perfect competition*" market. There are two basic characteristics of a "*perfect competition*" market: free entry to and exit from the markets, and sellers are the accepters of the goods price. In order to achieve a level of equilibrium and be perfectly efficient, the market should satisfy six main conditions (Chang et al. 1995). Firstly, the market must consist of "*homogeneous products*" so that consumers (buyers) do not have any particular preferences for one product over

another. Secondly, there must be no obstacles for entering or exiting the market, in other words "*free mobility*"; therefore, excess profits will be eliminated through the process of competition. Thirdly, there must be "*perfect information*" in the market, which allows buyers and sellers to make rational, informed decisions. Fourthly, there must be a large number of sellers and buyers in the market; so that no individual sellers can exert undue influence on the price of the goods. Fifthly, there must be frequent transactions, so the market can quickly adjust its equilibrium to abolish surpluses or overcome shortages of goods. Finally, price is the only factor considered during the transaction process, so that there is "*no discrimination*" in the market to influence the purchase. Clearly, it is implausible to have all these requirements for perfect efficiency and perfect competition in any goods market, including property markets (Chang et al. 1995, Lim 2000).

The concept of market efficiency appears in many financial goods markets, such as bonds and shares. Market efficiency refers to the issue of processing market information efficiency and the availability of that information to the buyer and seller. Fama (1970) formalised the concept of market efficiency, depending on the level of information available: weak form efficiency; semi-strong form efficiency; and strong form efficiency[2-2]. Based on the "*efficient market hypothesis*" (EMH), Fama (1970) carried out research on financial markets in the 1960s. The EMH is important for property as well as other markets, because it provides a basis for the analysis of market price and investor behaviour (Lim 2000). The EMH assumes that the available information influencing the value of the asset now and in the future is likely to be used by market participants when making a transaction. For example, market efficiency refers to how rapidly public information about the attractiveness of market investments affects the market price at the time.

2-2

- weak form efficiency – no investor can earn excess returns from trading rules based on a past series of price.
- semi-strong form efficiency – no investor can earn excess returns from trading rules based on publicly available information
- strong form efficiency – no investor can earn excess returns from any information whether publicly available or not

Previous studies (Fama 1970, Mills 1988, Ross et al. 1991) mainly focus on the information efficiency and are based on the assumption of a perfect competition market. Venmore-Rowland (1989) also states that the main characteristics and criteria of market efficiency are good analysis of the market; the tradable market and the availability of information. However, the property market is not like this in practice and it is more difficult to obtain reliable data on price in the property market than in stock markets. Evans (1995) argues that *"in the analysis of some markets the 'as if' assumption may be adequate, but in the case of the property market, failure to recognise its imperfections can lead to false conclusions"*.

Owing to the characteristics of the property market (such as being heterogeneous; no central trading places like stock markets; less frequent transactions compared to financial markets; illiquidity of real property; and lack of full information), it is difficult to be precise in determining property market prices and analysing market performance. In other words, the underlying market features of property are such that a uniform market price will not exist and EMH provides a poor explanation of market outcomes as property is very different from other assets (Keogh et al. 1999, Lim 2000).

Gatzlaff and Tirtiroglu (1995) point out that the understanding of the efficiency of the property market is inadequate compared to the securities market. As a consequence, there is no uniform price for property products and the results are limited and not well-suited for the property market (Keogh et al. 1999). Previous studies (Evans 1991, Ross et al. 1991, Mills 1988) argue that the excessive and abnormal return from the property market is a result of its inefficiency.

The property market is regarded as either inefficient (Evans 1991, Evans 1995, Grossman et al. 1980, Ross et al. 1991, Adair et al. 1995, Orr 1995, D'Arcy et al. 1996, Keogh et al. 1999, Harvey 2000) or imperfect (Brown 1991, Fraser 1992, Evans 1995, Shilling 1997, Geurt et al. 1996, Keogh et al. 1999). Keogh et al. (1999) argue that previous efficiency studies fail to capture the essential characteristics of real property, such as physical and legal entity; do not consider the market process and extensively focus on information efficiency.

Owing to the inefficient property market, the role of property agents and understanding of institutional intervention appear to be more important during investment decisions (Evans 1995, Keogh et al. 1999, D'Arcy et al. 1996, Harvey 2000). Armitage et al. (1996) argue that increasing maturity will act directly on the limits of bounded efficiency. This could operate either to reduce or to increase market potential, although most market developments might be expected to enlarge the range of market possibilities. Keogh et al. (1994) and Armitage et al. (1996) argue that the level of maturity and market efficiency are closely related to each other in affecting market behaviour and performance. As a consequence, it is also essential to understand the level of maturity in each market before undertaking the econometric analysis.

2.4 Market Maturity Studies

As mentioned earlier, most of the research undertaken into the drivers of office markets has examined European and North American cities, and focussed on rental modelling. Although South-East Asia exhibited high economic growth from the early 1990s to mid-1997, it has largely been ignored in this respect, owing to data restraints, property market culture, or the unique ways that the market works.

Investment flows have been concentrated predominantly in economies operating at a similar level of development, and have been based on econometric analysis (Gardiner et al. 1988, 1991, Giussani et al. 1993a, 1993b, D'Arcy et al. 1994, 1997, Keogh et al. 1997, McGough et al. 1998). However, econometric analysis could not be employed in property markets where there is a lack of property information. With the increasing globalisation of investments, it would be useful to understand the level of the local market's development and its property market culture, as well as the economic fundamentals when investors enter an unfamiliar environment. Therefore, it is important to classify those markets in terms of the progress of their development. A useful starting point is the work of Keogh and D'Arcy (1994), who construct a market maturity paradigm by looking at certain European cities.

2.4.1 The Literature of Property Market Maturity

Keogh (1991) suggests that the determination of capital values and yields may be partly explained by the decision-making rules of investing institutions or the social symbolism of property as an asset. Opportunities in both the user and investor markets will be limited by the system of legal property rights and the quality of professional advice available to property investment and transaction activities, with obvious implications for property rights.

In order to understand the property market fully, it is necessary to consider the nature and evolution of the market as well as economic conditions. In terms of analysing economic conditions, analysts usually look at national level, regional level and also urban economies. However, most of these analyses ignore the cultural or institutional framework. Most of the popular analytical framework is justified by the demand and supply conditions in three sub-markets: user, investment and development (also see Chapter 2.2.2) (Keogh 1991).

Jones Lang Wootton research (1992) points out that market maturity can help "*in understanding how markets will emerge, mature and perform in the future*" (cited in Lee 2001). Jones Lang Wootton's research argues that the issue of maturity has "*important implications for the type of real estate products that might be appropriately offered to the market, city by city*" (cited in Lee 2001). Their research also acknowledges the importance of the complex interaction between spatial, cultural, economic, financial, technological and other factors in determining the detailed form of property market process (Armitage et al. 1996). They suggest an evolutionary process in which simple construction gives way to a specialised development sector, a dedicated investment market emerges, trade in property interests becomes increasingly active and sophisticated forms of portfolio management are ultimately introduced (Armitage et al. 1996). Therefore, market maturity gives a useful framework to look at property market performance. Armitage (1996) defines market maturity as "*a term used both frequently and loosely by participants in the property market to describe a level of development or evolution achieved by a market*". In other words, market maturity needs to be understood to make assessments of market

behaviour possible and to assist decision making, as does the development of the market.

Keogh and D'Arcy (1994) argue that "*property maturity cannot be only regarded as an economic evolution*". They propose broad ideas of examining the property market's performance which not only rely on the economic foundation but also on institutional characteristics impacting on property markets. They provide a very useful comparative framework in European studies. They state that market maturity can be described in "*economic*", "*social*", "*political*", "*legal*" and "*institutional*" terms and also that property maturity can be seen as a sub-category of wider economic evolution. Jones Lang Wootton Research (1992) also suggests that "*the degree of maturity, urban dynamics and real estate market activities are strongly influenced by economic structures and activities*" (cited in Lim 2000). Keogh et al. (1994) focus on six categories of property market institutional characteristics, which are: market factors; obligations of occupation; market openness and flexibility; market specialisation; informational availability and transmission; and economic development. For instance, the extent of property market maturity may range from a traditional and simple form in which the real estate sector is poorly developed, to a mature and sophisticated stage which reflects complex requirements for use and investment (Lim 2000). The characteristics of property market maturity are summarised in the following Table 2-3.

Table 2-3: Key Characteristics of Property Maturity:

Principal Characteristics	Rethinking Characteristics
Accommodation of full range of use and investment objectives	*The wider business of a full range of use and investment objectives* *Investment culture*
Flexible market adjustment in both long and short term	*Overshooting* *Market decision rules*
Existence of a sophisticated property profession with its associated institutions and networks	*Problem of over-specialisation* *Knowledge base*
Market openness in spatial, functional and sectoral terms	*Market distortions* *Destabilisations*
Standardisation of property rights and market practices	*Role for local real estate culture*

Source: Keogh et al. (1994)

London, Barcelona and Milan were chosen as case studies representing mature and emerging markets. By applying these criteria, the authors were able to classify the current market status across Europe by using London as a control of comparator. The result of these case studies is listed in the Table 2-4:

Table 2-4: Comparing Mature and Emergent Markets

	London	**Barcelona**	**Milan**
Key Maturity Issue			
User and Investor Opportunities	Extensive	Limited	Limited
Flexibility	High	Medium	Low
Profession	Specialist	Non-specialist	Non-specialist
Information and Research	Good	Poor	Poor
Openness	Extreme	Limited	Very limited
Standardisation	High	Moderate	Moderate
Value Stability	Low	Moderate	High
Development Stability	Low	Moderate	Moderate

Source: Keogh et al. (1994)

The results show that London is a comparatively mature market with extensive investment opportunities, high quality professional service, open information availability and very low value stability plus high economic development growth. Barcelona and Milan are less developed in all aspects and are categorised as emergent markets.

Keogh et al. (1994) conclude that the concept of market maturity is too complex to provide a simple definition of comparative property market activity. The pattern of market evolution represents one of the important elements for explaining property market performance. There is no single standard route to achieve maturity because different markets have different characteristics (strengths and weakness), and maturity should be a "*relative*" term rather than an "*absolute*" term, which means that a mature market does not always mean an efficient one; therefore, what is currently regarded as a mature market does not necessarily represent a standard route to be followed by

emergent markets. The existing analysis is mainly based on economic fundamentals, which should be supplemented with an analysis of market maturity (Keogh 1991, Keogh et al. 1994, Keogh 1996, Lee 1999, Lee 2001, Armitage 1995, 1996, Armitage et al. 1996). Keogh et al. (1994) also suggest that a better way to examine property market maturity is in terms of the relationship between local property cultures and the efficiency of market processes.

Seek (1996b) states that market evolution from early development and emergence to a high level of maturity is a continuous pattern. He also suggests an "*S*" shaped pattern of development, explained by rapid growth in the early stage, followed by a slowing down as maturity approaches. In his research, maturity is the ultimate goal of the property market. However, it is more appropriate to adapt the idea of market maturity "*as a relative rather than an absolute achievement since a future revolution of the property market process may render obsolete our current perception of maturity*" (Keogh et al. 1994). Seek (1996b) also believes that different markets will follow a common evolutionary process from early development through immaturity and finally to maturity, but he mentions that it may be at different rates. Armitage et al. (1996) doubt this representation of the pattern of change, as it glosses over the relative rates of change in specific markets and downplays significant factors which might have considerable impacts on property markets.

The study of Keogh et al. (1994) has been regarded as the most comprehensive treatment of market maturity (Lee 1999, 2001, Armitage 1996, Armitage et al. 1996, Lim 2000). Still, even in their study, there are no clear explanations to define the scale of their criteria ("*low*", "*moderate*", "*high*", "*limited*", "*extensive*" etc). Therefore, it would be useful for understanding and comparison to set a scale to examine the market, such as 1 is least developed and 10 is most developed. In addition, market maturity should be considered as a whole process rather than using a specific point to examine the markets.

Lee (1999) re-examines the real estate market characteristics of thirteen European countries, by setting the British market as an exemplar of a mature market, as a direct comparison to the work of Keogh's et al.(1994). He not only adapts this work to examine maturity but also considers leasing structures, market liquidity, landlord

obligations, transparency issues and tax issues to define markets' maturity, which are absent in the Keogh et al. (1994) study. He concludes that UK is the most mature market, whereas, Finland, France, Italy, Portugal, Sweden and Switzerland are immature. In his study, one shortcoming appears to be that there is no clear statement of the scores or range of scores qualifying as immature (1) and the other categories (3 as mature). Also, he does not state explicitly the cities he includes and those he excludes for his analysis of each country. Within each country the principal cities will be at different levels of development, and it is important to know which cities are being included and which ignored.

2.4.2 Relevant Market Maturity Studies in South-East Asian Office Markets

There have been few market maturity studies which focus on South-East Asian cities. Schultz (1990) proposes the opportunities and risk in emerging markets in the Pacific Rim region, from which he concludes that Hong Kong and Singapore are mature markets. In his terms, a mature market should be able to enjoy stability and low risk, but there are likely to be fewer opportunities for high returns. A mature market should also be supported by well-developed infrastructure and large pools of skilled labour. On the other hand, Schultz defines emerging markets as markets presenting high earning potential for investors in the early development stage but also with higher risk from regulatory conditions, unreliable communications and clearing systems, or an unsettled economy. Malaysia, Thailand and Indonesia fall into this group according to his study. The study gives few clear indicators of how to assess and classify "mature" and "emerging" markets, apart from drawing the conclusion and highlighting overall market problems in the region.

Koh (1995) also draws upon South-East Asian data to compare opportunity, risk and expected returns from markets at varying levels of maturity (mature, developing and emerging): see the following Table 2-5 (cited in Armitage 1996):

Table 2-5: Summary of Market Opportunities

Mature Markets	Developing Markets	Emerging Markets
Opportunities		
Prime locations	*Demand for residential developments*	*Local housing*
Prospects where there is growth (lower risk) *Longer term review*	*Retail centres with income growth* *Recreational and leisure projects*	*CBD office in principal cities* *Industrial* *Business Hotels*
Risks		
High entry costs	*Wider fluctuations in market from mis-timing of development*	*Insufficient local demand*
Less diversification possibilities	*Choice of wrong locations not ready for growth*	*Title problems*
		Lack of development control *Lack of good information and professional services*
Expected Return		
IRR: 12% - 15% Yields: 4% - 7%	IRR: 13% - 22% Yields: 8% - 11%	IRR: 20% - 35% Yields: 12% - 16%

Source: Koh 1995:9 (citied in Armitage 1996)

In this analysis, the mature market has the lowest risk with the lowest yield, which is similar to Schultz's conclusions. Developing and emerging markets have higher risk and some uncertainties, such as a lack of professional services and information, title problems, poor development procedures and also a lack of local demand. Those factors will affect investment markets significantly. In this research, a clear idea is given of the opportunities and risks at different levels of maturity. However, it does not give a clear definition of maturity and how to assess the level of maturity. Also, expected return, such as internal rate of return (IRR) and yields, cannot be generalised in this way, as different regions must have different rates of return. It is evident from the research, however, that investors still focus their principal analysis of investment opportunities on general economic indicators. Their interest and understanding of the specific factors influencing property performance appear to be very secondary to that decision making.

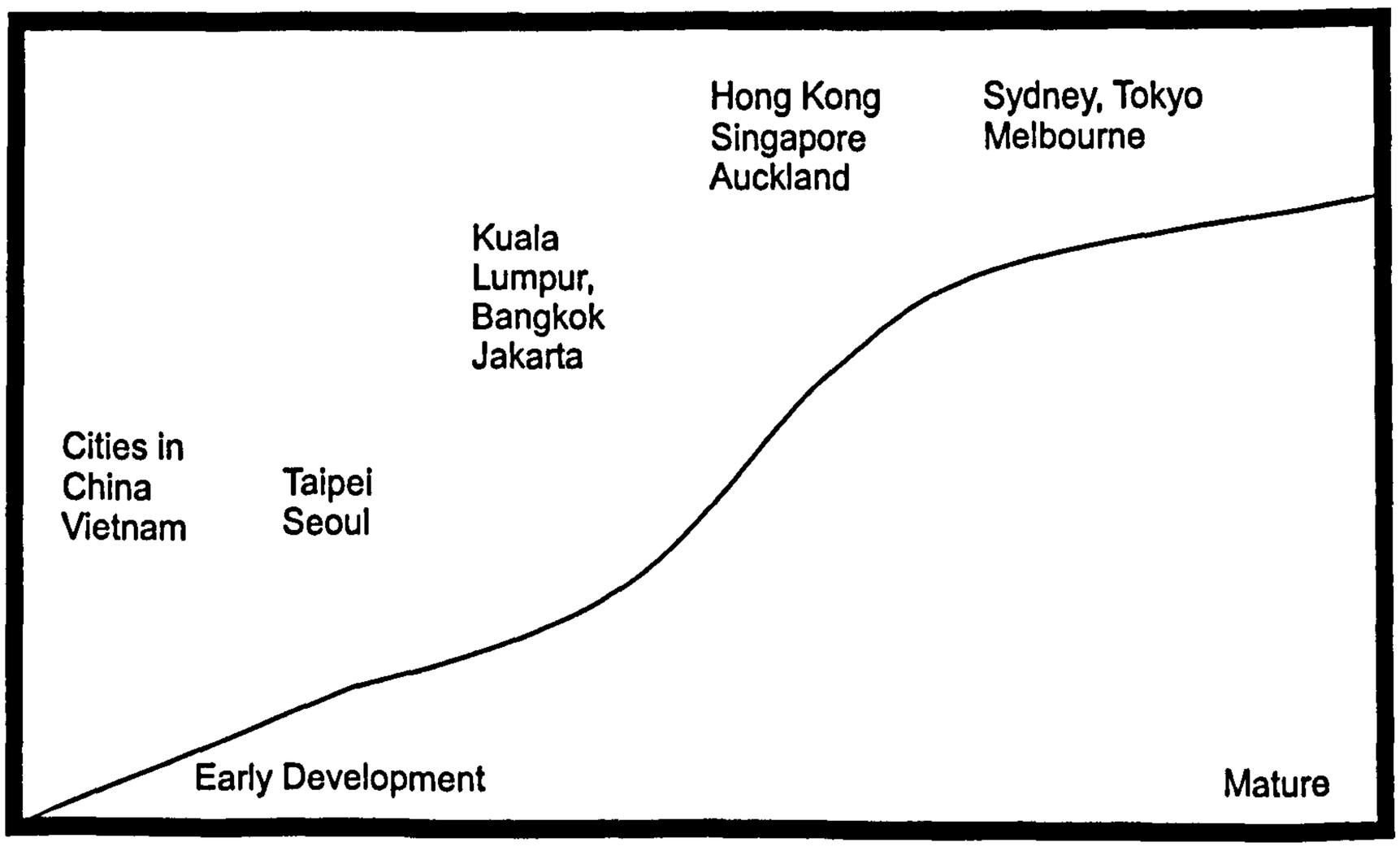
Seek (1996b) proposes that the Asia Pacific region features a diverse group of economies at varying degrees of maturity. He suggests that in 1993 the main Chinese and Vietnamese cities represented emergent markets, whereas Taipei and Seoul were in early stages of development. Kuala Lumpur, Bangkok, and Jakarta were at the

stage of rapid development. Sydney, Tokyo and Melbourne were the most mature markets in the region at that time, and Hong Kong, Singapore and Auckland were reaching maturity. Figure 2-6 shows the situation of the different cities in terms of his "*S*" shape development pattern theory. In his studies, all things being equal, a typical property market should go though many almost imperceptible stages of development: initial phase; overbuilding phase; maturing phase; mature phase; and post mature phase (Table 2-6). However, with countries such as Indonesia, Malaysia and Thailand, high economic growths do not necessarily mean a high level of maturity in property markets. There is at least one major doubt in his study. He concludes that Bangkok, Kuala Lumpur and Jakarta are perceived as more mature than Taipei and Seoul in his assessment. The support for this evidence is not clear. High economic growth is cited as the main indicator of maturity but, in these cases, this seems to be achieved through low labour cost (Kotler et al. 2000). Taipei and Seoul might have already gone past this stage by this point in time. He defines maturity as characterised by a slowdown in service sector growth; dated infrastructure; decentralisation to suburban office markets and heavy emphasis on planning and environment controls. His study again focuses more on the assessment of the economic and financial market environments than market information availability, professionalism, local property market culture and property market performance itself, which can also be elements of the market process. Yet he also points out the importance of the institutional environment, such as restrictions and regulations on foreign investment and political stability. From his definition of the mature stage, Hong Kong and Singapore should be categorised as mature now. This provided an incentive to re-examine the South-East Asia region to measure development in the light of this projection. Again, he does not give clear indicators for assessing maturity or good examples of cities at the mature and post-mature stages. He argues that a property market does not develop in isolation from the other cities in the region, regardless of how mature each city is. The pace and direction of each market's development are very much affected by the cross-flows of investment in the region. In other words, he believes there is a universal evolutionary path to be followed towards achieving a mature stage. However, this situation does not apply to every case, such as in Europe. For example, the evolution of the property market in London is different from the Barcelona market, not only for the level of maturity but also for the evolutionary path.

Table 2-6: Characteristics of Property Maturity in five Different Stages

Property Market Evolution Stages	***Characteristics***	***Example Cities***
Initial Stage	• *Market just opened up or just discovered by foreign investors*	• Shanghai • Beijing
Overbuilding Stage	• *Oversupply in development markets*	• Jakarta • Kuala Lumpur • Bangkok
Maturing Stage	• *Foreign investment control liberalised* • *Development of institutional investment firms* • *Rapid transition from manufacturing to service-oriented economy* • *Commitment to urban infrastructure* • *Greater market transparency with growth intermediaries*	• Hong Kong • Singapore
Mature Stage	• *Slowdown in service-sector growth* • *Dated infrastructure* • *Decentralisation to suburban office markets* • *Heavy emphasis on planning and environment controls*	• Many Western cities
Post-mature Stage	• *Many Western cities are most probably into this phase following the property slump of the late 1980s and early 1990s.* • *No clear outcome*	• Many Western cities

Figure 2-6: Asia-Pacific Commercial Property Maturity Continuum in 1993



Source: Seek (1996a)

Armitage (1996) applied the paradigm of Keogh et al. (1994) to selected South-East Asia prime office markets in 1996. The summary is listed in the following Table 2-7:

Table 2-7: Market Maturity in Selected Asia-Pacific Property Markets

	Singapore	Hong Kong	Jakarta	Kuala Lumpur	Vietnam	Bangkok
Maturity Issue						
Use and investment opportunities	numerous	numerous	emerging	emerging	restricted	emerging
Flexibility	high	high	improving	low	low	improving
Profession	specialist	specialist	non-specialist	non-specialist	non-specialist	mainly non-specialist
Information/ research openness standardisation	good	good	poor	poor	poor	poor
Market Aspects						
Value Stability	low	medium	low	medium	low	medium
Development stability	low-medium	medium	low	low	low	low-medium

Source: Armitage (1996)

She regards Singapore and Hong Kong as mature markets. Clearly, those two markets do show extensive investment opportunities, good market information, value stability, and professional services compared to other cities in the South-East Asian region. Her work provides an overview of market status in South-East Asian cities in 1996.

Again, Armitage's work does not provide any definitions of what is meant by "*good*"," *poor*", "*medium*", "*high*", etc. Nor does she consider economic foundation indicators, such as GDP growth. Furthermore, those markets have changed considerably since this research was undertaken, with Jakarta relegated to third world levels around 1998 (Chin 1999). Finally, no conclusions were given about the development status for rest of the cities in her study.

Lee (2001) investigates the risk of investing in property markets in the Asian region. He divides risk into investment risk, currency risk, political risk and institutional risk. In terms of institutional risk, he assesses the level of market maturity, the level of transparency and corruption levels within each country. In his research, he takes transparency as an issue independent of maturity. He adopts the five criteria of the level of transparency which were classified by Gordon (2000). These are:

- presence of public and private performance indices;
- quality of market fundamental research;
- availability of reliable financial statements;
- alignment of interests among directors, managers and investors; and
- taxes, penalties and restrictions on cross-border transactions.

In the results from this research, there appears to be a close relationship between level of maturity and level of transparency. For example, China and Vietnam are both in an emerging situation with low levels of transparency –as in Seek's research (1996b). Indonesia is down from emergent market (in 1993 research) to emerging market. Taiwan has moved from early development to rapid development towards maturity, but still with a low level of transparency. Hong Kong and Singapore are nearly established markets, with high levels of transparency.

One of the problems in this research is that it does not explain how the development statuses (emerging, emergent, mature) are arrived at.

Jones Lang LaSalle Research (2004) produces a global transparency index covering legal institutions and property institutions, such as: the availability of accurate financial and market information, regulatory and legal environment, security of legal title and enforceability of property rights, financial disclosure and governance of listed real estate companies, and zoning and building codes.

This index covers 51 cases at country level. In their research, a property market with "pure transparency" has to be completely open and clearly organised; respecting private property rights; and having consistency of enforcement of published rules and regulations. There are 5 tiers of sub-groups among the 22 countries: highly transparent (1); transparent (2); semi-transparent (3); low transparent (4); and opaque (5).

In their result, none of the South-East Asian countries are listed in Tier 1. Hong Kong comes highest, ranking at number 7 (Tier 2), followed by Singapore, Malaysia,

Taiwan and Thailand (See Table 2-8). Table 2-8 indicates that most of the countries are in the same situation as 2001, except the case of Malaysia.

Table 2-8: Real Estate Transparency Index (2004)

Country	Transparency Index	Rank	Tier	2001-2004 Change
Australia	1.19	1	1	Same
United States	1.24	3	1	Same
United Kingdom	1.24	4	1	Same
Hong Kong	1.50	7	2	Same
Singapore	1.55	9	2	Same
Malaysia	2.30	20	2	Improved
Taiwan	3.10	27	3	N/A
Thailand	3.44	36	3	Same

Source: Jones Lang LaSalle (2004)

This research provides an overview of the level of real estate markets in the five countries. However, the results of Malaysia, Thailand and Taiwan might be different if this research had been undertaken at city level. We can also see that the higher the transparency level, the higher the maturity level of property market. These findings are consistent with Lee's (2001) research.

World Economic Forum (2004) produces a competitiveness survey covering 120 countries in the world by comparing their macroeconomic environments, public institutions and technology. This index focuses on business competitiveness rather than property market maturity or the general institutional environment. Again, this research is based on the country level not city level. Although this index gives an overall competitiveness ranking (Finland: 1st, USA: 2nd, Taiwan: 5th; Singapore:6th; Australia: 10th, United Kingdom: 15th, Hong Kong: 24th; Malaysia: 29th; Thailand 32nd), there is little use to take it further as a property market maturity assessment, because no property market institutions have been measured in the whole report.

2.4.3 Summary of Property Maturity Studies

The Keogh et al. (1994), Seek (1996a, 1996b), Armitage (1996), Armitage et al. (1996) and Lee (1999, 2001) work all focuses on analyses of market maturity.

However, despite the value of much of this work, it has obvious limitations. Firstly, most of this research does not give a clear definition of terms used, such as "*low*", "*extensive*" and "*medium*". Only Lee (1999) uses scales to define the development level across the European cities but he fails to do the same in his South-East Asia study. Secondly, when defining market maturity, it is not only necessary to focus on institutional aspects but also to pay attention to the level of economic growth. Armitage (1996) and Lee (1999, 2001) did not consider economic aspects. Finally, these studies use subjective views or secondary data (such as previous reviews of different aspects) which they then interpret, rather than using "objective" evidence (such as questionnaires or interviews) to analyse the market.

Table 2-9 illustrates the classifications of the evolution of property markets from previous research. The development level of the property market could simply be divided into three sub-groups: emerging, emergent and mature. Taking this further, as a measure of maturity, certain specific characteristics can be highlighted as needing to be present in order for a market to be classified as mature. These characteristics are identified in Table 2-10.

Table 2-9: The Classification of Evolution in Property Markets

Keogh et al. (1994)	**Koh (1995)**	**Seek (1996a,1996b)**	**Armitage (1996) & Armitage et al. (1996)**	**Lee (2001)**
Emerging Market	*Emerging Market*	*Initial Phase*	*Emerging Market*	*Immature Market*
Emergent Market	*Developing Market*	*Over-building Phase*	*Emergent Market*	*Emerging Market*
Mature Market	*Mature Market*	*Maturing Phase*	*Mature Market*	*Mature Market*
		Mature Phase		
		Post-mature		

Table 2-10: The Summary of Characteristics of a Mature Market

- *Offers a sophisticated and sound financial structure*
- *Accommodates a full range of use and investment objectives*
- *Provides extensive property information and property intermediaries with high level service from property professionals*
- *Offers a wide range of the investment opportunities*
- *Provides a liberalised financial market environment*
- *Updated and well-developed public infrastructure*
- *Low risk and return*
- *Provides high quality property products*
- *Standardisation of property rights and market practice*
- *Flexible market in both the short and long run*
- *Stable economic environment*
- *Stable development environment*
- *Large pool of skilled workers*

Based on previous work (Keogh et al. 1994, Seek 1996a, 1996b, Armitage 1996, Armitage et al. 1996 and Lee 1999, 2001), a number of variables can be identified which, when applied to countries across South-East Asia, are likely to be helpful in highlighting the current level of their development (Table 2-11). The background literature was used to devise a questionnaire to help obtain up to date, primary data in order to assess market maturity in the region. Once the level of maturity in South-East Asia was assessed, econometric models could be employed to test the relationship between economic factors and office rental value.

Table 2-11: Key Points to Analyse Property Market Maturity

Key Points	Variables to Examine
Economic fundamentals	*Economic growth (GDP Growth)*
Characteristics of local property markets	*User and investor opportunities*
	Flexibility in investment objects and in capital movements
	Market openness
The culture of the local property market	*Role of property market culture*
	Quality of property products
Market information	*Information availability*
	Information standardisation
Professional services	*The presence of property intermediaries*
	The quality of property professionals services including professional institutions (refer as property professional level in the rest of the document)
Market stability	*Development stability and standardisation*
	Value Stability and Reality

2.5 Studies of Institutional Approaches to the Analysis of Property Markets

This part of the literature uses an institutional approach to examine the office investment markets in order to provide the whole picture of South-East Asian office investment markets' determining factors.

According to previous studies, the influence of institutional factors is still largely unexplained by conventional quantitative models of office markets. Economic modelling of office markets has generally focused on the demand and supply which causes rental movements (Gardiner et al. 1988, 1991, Giussani et al. 1993, D'Arcy et al. 1994, 1997, Keogh et al. 1997, McGough et al. 1998). There has been little attention paid to the role played by property market institutions and how the institutions affect property market performance. In many studies, the property market is simply represented as a passive unproblematic respondent to changes in space, economic and capital market requirements. Moreover, the property market has been regarded as mature and efficient in modelling studies (DiPasquale et al. 1992, Fisher 1992). This seems an implausible and incomplete way of analysing property markets.

Several studies (Ball 1994, Coakley 1994, Lizieri 1991, Shilling 1997 and Sivitanidou 1997) highlight a range of external factors affecting market activities, such as financial structure and technological improvement. In this section, the method of using an institutional approach to analyse property markets will be reviewed.

2.5.1 Studies of Institutionalism in Property Markets

Several studies focus on institutional analysis of the development process (Barrett and Healey 1985; Healey 1992, Goodchild and Munton 1985; Healey and Barrett 1990, Ball 1998, Guy et al. 2000). The distinction between organisations (players) and institutions (rules) is not made in the urban economics literature (Cao 2003). Moreover, the institutions in these studies are referring to "*players*" rather than "*rules*". Healey (1992) reviews four main models in the development process, which are: event-sequence models; agency models; structure models and institutional models. However, these studies mainly emphasise the importance of understanding the strategies and interests of actors and their relationships in the development process and fail to investigate the general institutional environment of commercial property markets. In addition, these studies fail to offer a clear definition of "*institution*" and just focus on the relationship between structure and agency. They highlight the importance of different forms of land ownership and the organisation of the development sector in determining property market activity.

Ball (1998) also reviews institutional studies in commercial property research and categorises them into four main approaches: mainstream economics, power approaches to institutions, structure-agency institutionalism and the structure of building provision. The mainstream economics approaches study: technical production characteristics, transaction-cost minimising, game theory and information theory. However, Ball says that many mainstream economic models do not apply well in the commercial property world, as they make impractical assumptions about institutional behaviour. Power approaches study institutions' power and its consequences, and Ball considers this a supplement rather than a replacement for economics. Structure-agency institutionalism studies consider the relationship of players involved in the property development process. There are no precise definitions of "*institutions*", "*agency*" and "*structure*" in this approach, and it cannot solve the

problems of dynamics to deal with changes (Cao 2003). Studies investigating the structure of building provision look at the contemporary network of relationships associated with the provision of particular types of building at specific points in time. Cao (2003) argues that this approach is historically contingent, which makes it difficult *a priori* to define them and thus limits its use. In his study, he treats institutions as firms, public bodies and other agencies associated with property business, but fails to look at the institutional environment (rules) of property markets. Rowlinson (1997) also considers institutions as practices and networks which influence the way in which those organisations operate and inter-relate, which shares the idea of Ball (1998).

In previous studies (Barrett et al. 1985; Healey 1992, Goodchild et al. 1985; Healey et al. 1990, Ball 1998), the definition of "*institutions*" refers to "*players*" and "*organisations*", such as private firms and public agencies. New institutional economists consider "*institutions*" as sets of rules. The World Bank (2003) defines "*institutions*" as comprising "*rules*" and "*organisations*". North (1990) says that institutions are *"the rules of the game in society or, more formally, are the humanly devised constraints that shape human interaction. In consequence, they structure incentives in human exchange, whether political, social, or economic. Institutional change shapes the way societies evolve through time and hence is the key to understanding historical change*". The major role of institutions is to reduce uncertainty, by establishing a stable structure of human interaction. Institutional changes can be formal or informal. Formal changes can be the result of political statements or a judicial decision; informal changes can be changes in customs or traditions. Those cultural constraints not only connect the past with the present and future, but also provide the key to explaining the path of the changes (North 1990). Eggertsson (1990) also mentions that institutions emerge to reduce friction and uncertainties, collectively regarded as transaction costs. In this view, the institutional structure of the property market is a device to provide certainty and reduce transaction costs (broadly defined) associated with the acquisition and use of property. It provides a known framework within which trade in property can occur and therefore operates to some degree as a constraint on economic behaviour. D'Arcy et al. (1998) argue that the market responds to the changing economic and social environment by modifying its rules and structures.

Keogh and D'Arcy (1995) describe the importance of institutional studies, commenting that the "institutional structure of individual property markets is very important across the world because each property market behaves differently in terms of the institutional form and structure". Lee (2001) states that "the most important factors deterring overseas investment are unfamiliarity with foreign market structures and limitations, and other formal regulatory barriers". Lacking local information and expertise is the most difficult part of overseas investment. Different cultural and legal structures are also parts of these difficulties, but all can be closely linked as lack of local knowledge. Newell et al. (1995) point out that "the growth, integration and deregulation of world financial markets, as well as changes in international politics and economic policies have resulted in increased global investment opportunities". These statements highlight the influence of institutions on market activity, including property markets. The institutions cover political, regulation, and economic aspects, which can facilitate or limit the property market process. This process will bring market players together to produce the market activities which generate the rules in a market. This market process is subject to change in response to institutional changes in a property market, which can be political, social, economic or legal.

D'Arcy and Keogh (1998) mention that institutional analysis is a vital supplement to the existing quantitative approach to property market analysis for investment decision-making. The property market process is actually the interaction of a set of market rules, which reflect the ability of property markets to respond to the challenge of economic changes by meeting user requirements. They emphasise that the property market exists within a broad institutional context defined by "*the prevailing political, economic, social and legal system*". The changes of local property markets reflect the legal and institutional structure in general. They are conditioned, amongst other things, by landlord and tenant law, planning law and policy, and various forms of urban policy initiative, which in turn provide an institutional context for the activities of those who participate in the markets to develop, use, or invest in properties. Their definition of "*institutions*" is close to North's definition (1990) but also applies to the political, social, economic and legal aspects of the property market. They illustrate the urban competition process for six commercial markets, Berlin, Budapest, London, Madrid, Milan and Paris by analysing measures of property value, obligations and

cost of occupation, and property market processes for each city (Table 2-12). They provide a very comprehensive framework for assessing the broad institutional environment in comparative studies. They use rental values and yield as basic market performance indicators; the legal and conventions factors as an indicator of occupancy cost; and market information, services provision, maturity level, and the importance of foreign investors as indicators of market evolution. Their work provides an extensive framework to look at property market evaluation, by analysing property factors, legal factors, and development levels. Although they point out the importance of the institutional environment, such as political, economic, social and legal aspects, they fail to assess the importance of political and social factors in this paper, which limits the scope of the assessment.

Table 2-12: The Factors of Urban Competition Process

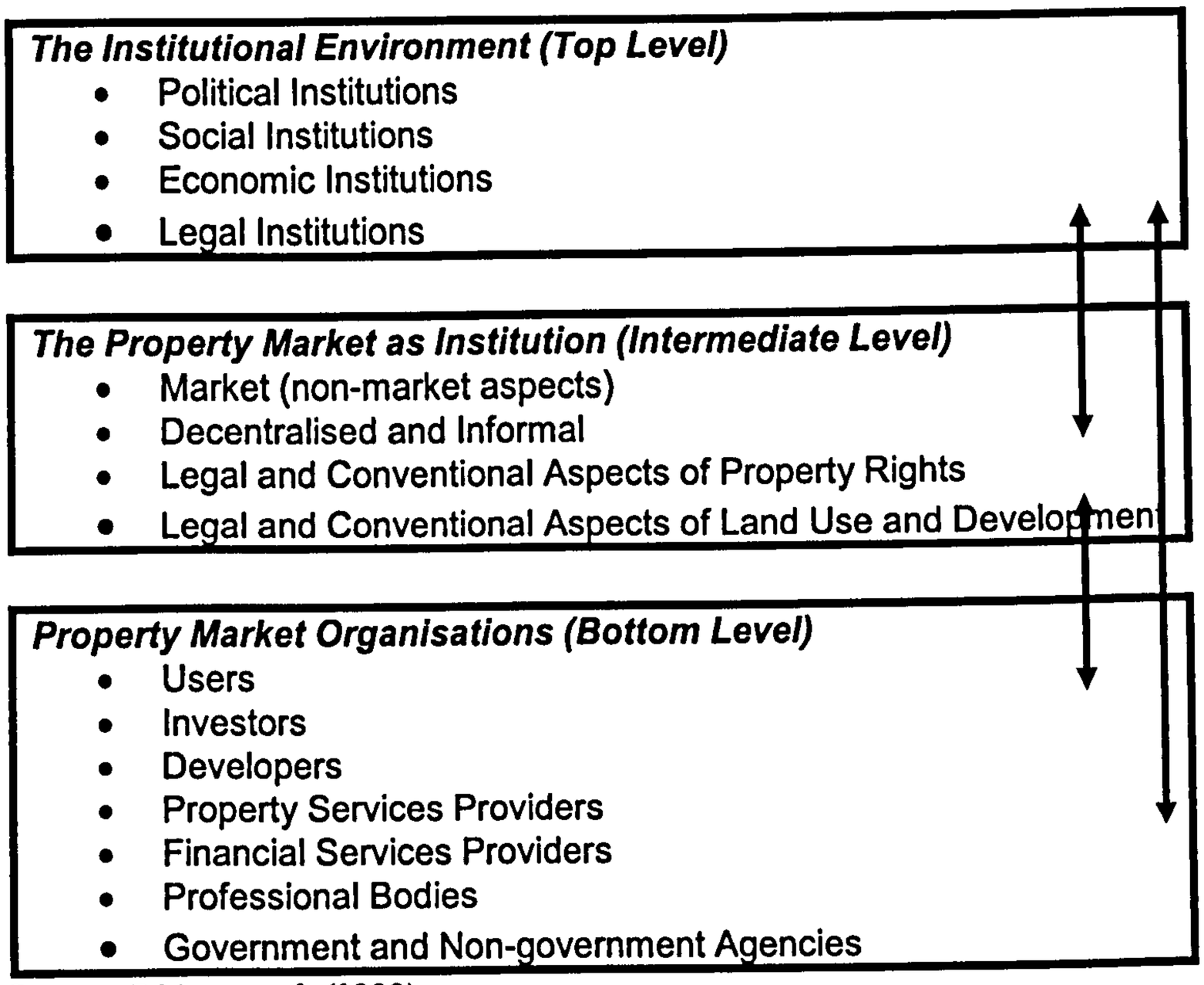
Urban Competition Process	Examine Factors/Indicators
• *Measure of Property Value*	• *Rental Value* • *Peak-to-trough Rent Change* • *Peak-to-trough Yield Movements*
• *Obligations of Occupation and Transaction Costs*	• *Lease Length* • *Statutory Right to Renew Lease* • *Transaction Costs (Tax, Services Charges)* • *Non-rent Occupancy costs* • *Total Occupancy Cost*
• *Property Market Process*	• *Market Type* • *Real Estate Service Provision* • *Market Information* • *Property Investment Market* • *Importance of non-domestic Actors and Funds*

Keogh and D'Arcy (1999) have explicitly introduced the theory of the new institutionalism and propose a three level hierarchy for institutional analysis of property markets, which are: institutional environment, the property market as an institution, and property market organisations (Figure 2-7). At the topmost level, the property market exists within an institutional framework defined by political, social, economic and legal rules and conventions. At the intermediate level, the property market itself can be considered as an institution, with a range of characteristics determining its structure, scope and function. In this respect, the property market can be decentralised and informal. The legal and conventional aspects of property rights and land use and development exist in this whole institution. Finally, at the bottom

level, the main organisations which operate in the property market can be considered in terms of the way they are structured and the way they change. They can be users, investors, developers, property service providers, financial service providers, professional bodies, and governmental and non-governmental agencies. Those organisations are the basic units in the property market and their interaction creates market activity. The relationship between institutions and organisations at each level, and between levels, can best be described as interactive, defined in relation to one another and capable of change in response to action and experience.

For example, the broad institutional climate will frame the perceptions and expectations of actors in the property market. In turn, the experience of property market actors may feed back upon, and effect changes in, the institutional environment. Keogh et al. (1999a) define institutions as "*rules, norms, and regulations by which a society functions*". Those institutions impart certainty and stability to social interaction, but they also change and develop over time as circumstances and experience dictate. The authors also point out that the property market as an institution is a network of rules, conventions and relationships which collectively represent the system through which property is used and traded. In their study, they provide a very clear and sound hierarchy in terms of institutional analysis, but how the hierarchy operates is not clearly articulated. Most of the previous studies (Barrett et al 1985; Healey 1992, Goodchild et al 1985; Healey et al. 1990, Ball 1998) mainly focus on the bottom level to see the interactions between organisations.

Figure 2-7: The Institutional Hierarchy of Property Markets



Source: D'Arcy et al. (1999)

D'Arcy and Keogh (2002) analyse British office development since 1950 based on the institutional hierarchy (D'Arcy et al. 1999). They explain in detail the relationship between the market actors and organisations at the micro level and also examine the relationship between economy and property at the macro level. They conclude that there is extensive evidence of institutional flexibility and change in which rules, assumptions, methods of business and the distribution of development roles shift substantially over time, reflecting both actual and perceived shifts in transaction cost advantage across actors in development. They do not provide any examples of assessments of social, legal and political institutions or factors (top level), and over-emphasise the bottom level of the hierarchy. In addition, there are no clear indicators provided for analysis at the macro level (top level) in the general institutional environment. Clearly, institutional characteristics vary from one national property market to another and from one time period to another and these differences are important to the analysis of market outcomes and behaviour (Keogh 1996, Keogh et al 1994, D'Arcy et al. 1997, 1998, 1999). D'Arcy et al. (1997) argue that "*internationalisation represents a significant form of institutional change in the real estate market, affecting the organisation of firms in the sector, their practices and, ultimately, the evolutionary path of the market itself*". Thus, they examine the impact

of real estate service providers in the UK as a wider institutional analysis of the real estate market.

In terms of legal institutional aspects, the existing structure of legal interests might either facilitate or restrict the refurbishment and redevelopment of property (D'Arcy et al. 1998). Massey et al. (1978) ascertained that different types of property owner will respond differently to development opportunities, with financial owners tending to react more rapidly than industrial owners to development potential. However, their study rather focuses on property rights and does not mention how the legal framework influences the property market. Several studies (Ball 1994, Lizieri 1991, Coakley 1994, Moricz et al. 1997, Schultz 1990, Adair et al. 1995) argue that the integration of world financial markets and their liberalisation are key influences on property market activity, indicating the importance of economic institutions to property market performance. Moricz et al. (1997) also found that the experience of regulation in New Zealand shaped the characteristics of property market performance in profound ways, turning that country from an introverted market to an open internationalised market in the 1980s. Newell et al. (1995, 2001) and Newell et al. (1996) summarise the major factors which contribute to a high level of interest in a property market by foreign investors, including: favourable exchange rates, interest rate differentials, tax incentives, few ownership restrictions, economic and political diversification, strong economy, investment stability, improved market information, foreign investment policy, level of global communication and greater choices of investment. Those factors also strengthen the importance of institutional influences. Geurt et al. (1996) also stress that economics and law are the major two disciplines of the institutional framework. They identify special legal-political and socio-cultural factors that impact on property investors, including: political, financial and credit risk, bribery and corruption levels, and foreign investment controls and the regulation for foreign investors (the treatment of foreigners). Their study confirms the importance of those factors' influences on returns from property markets, especially the legal aspects but, again, no detailed data collection is mentioned in the paper.

Lee (1999) suggests that institutional characteristics of particular importance in real estate markets are: differences in market structure, information gathering cost, withholding tax, fees and other formal regulatory barriers across countries which are

likely to lead to differences in performance. He examines thirteen European countries, mainly by evaluating their legal institutions and tax regime, using criteria such as maturity transparency, standard lease terms, market liquidity, landlord obligations, tax efficiency, and exit liquidity. He provides a clear picture of the similarities and differences between countries by rankings 1 to 10, with the maximum total score being 40, which is the case of the UK. The study is based on D'Arcy et al.'s work (1999) framework of the institutional hierarchy, focusing on the top level and offering a broad institutional environment assessment, which has been neglected by previous studies. However, he only focuses on the legal institutions, rather than economic, social, and political institutions. In addition, the operation of the assessment and the definition of each criterion are not explained.

Lee (2001) says "*as international markets encompass many different countries with differing administrative, legislative and fiscal regimes, coupled with differing property market conventions and codes of valuation practice, major issues arise regarding the comparability of property data on a cross-border basis*". He examines the risk in investing in the real estate markets in the Asian Region. He divides risk into investment risk, currency risk, political risk, and institutional risk. He finds that currency risk and political risk are not important to investment decisions. In the study, he starts to look at the institutional environment of the Asian region, but does not offer a detailed assessment of his analysis. Again, only secondary data are used for his analysis, and the data he used neglects the regional market participants' points of view.

Seek (1996a, 1996b) also provides a list of factors to be used in analysing the institutional environment relating to the property market: the strength and stability of the economy; economic growth trends and prospects; the state of economic development; political stability; the depth and breadth of the property market; the range and quality of the property products; foreign investment regulations and restrictions; law governing property rights and tenures; the level of sophistication of the financial markets; urban form and transportation. Those factors cover the broad institutional environment (political, economic, legal and social), but, again, he does not offer any definition of how it operates and is assessed.

Cao et al. (2002a, 2002b) examine the opportunities for international investors in the Beijing and Shanghai office markets. They apply three-level analyses: constitutional level; collective level and optional level. The study focus on political decision-making and arrangements on different levels. For example, decisions are made by politicians, which in turn set the institutional arrangements for the collective choice level. Thus these decisions form the rules that officials must obey when they formulate rules for the market. Their study offers a different method of analysis of the property market by looking at the political arrangements, which was suitable for the People's Republic of China (PRC) market. This method might have difficulties used in comparative studies because of the differences in political systems and arrangements in different markets; especially as South-East Asia is recognised as one of the most dynamic parts of the global economy, and there is a great deal of diversity in political, cultural and economic traditions (Lim et al. 2002). They also fail to look at social institutions and over-emphasise the impact of legal institutions and political arrangements.

Lim et al. (2002) examine real estate investment opportunities in South-East Asia. They list twenty-eight factors affecting investment decision-making, which cover political, economic, social and legal institutions. Expected returns, internal political stability and restrictions on foreign investors are the most important factors in their study, whereas custom and habit are the least important factor. Their study provides an extensive framework of the importance of different institutional factors, with primary data. However, the research is only based on Singapore and UK, and can not represent South-East Asia as a whole.

Guy et al. (2000) argue that an institutional approach should combine both economic and social analyses of the property development process while dismissing the separation of the social and economic factors, or the over-emphasis of either of them. They also suggest that cultural institutionalism might provide additional insights into the operation of the property market (Lim et al. 2002).

2.5.2 Summary of Institutional Studies

The institutional approaches were usually focused on the development process and the interaction and relationship between different actors, which is the lowest level of the institutional hierarchy (Figure 2-7) (Healey 1991, Healey et al. 1998, Barrett et al. 1985, D'Arcy et al. 2002). Studies (Seek 1996a, 1996b, Cao et al. 2002a, 2002b, Lee 1999, 2001) started paying attention to the general institutional environment, but many of them (Keogh 1996, Cao 2002a, 2002b, Geurt et al. 1996) failed to cover all sorts of institutional aspects (legal, political, economic and social). The lack of a detailed institutional approach is also a major problem for analysing property markets, and most of the studies have used secondary data to explain and analyse market performance.

In this study, the definition of "*institution*" will be adopted from North (1990) and D'Arcy et al. (1999). That is: institutions are a set of rules, which can be formal and informal. In the broad institutional environment, those rules can be simply divided into political, social/cultural, economic/financial and legal. The property market could be affected by interaction and combinations of those institutions.

This research will examine the institutional environment including political, social/cultural, economic/financial and legal aspects, which is the top level of the framework from D'Arcy et al. (1999). None of the previous studies have explored all the different institutional aspects which might potentially affect property market performance. Moreover, very few of the studies have carried out primary research to examine the importance of institutional factors. The factors which have been examined or suggested by the previous studies are summarised in the following table. These factors can be simply divided into economic, legal, social and political aspects.

Table 2-13: Components Affecting the Institutional Environment

Institutional Environment	
Economic/Financial Institutions	• *The strength and stability of the economy* • *Economic growth trends and prospects* • *Tax regime* • *Creditworthiness of the country* • *The level of liberalisation of financial market* • *Currency risk (currency exchange rate and convertibility)* • *Good demand and supply foundation* • *State of general economic health* • *Strength and stability of the currency* • *Good track record of sound macroeconomic policies* • *Degree of control over foreign investors* • *Investment liquidity*
Legal Institutions	• *Foreign investment regulations and restrictions* • *Law governing property rights and tenure.* • *Legal framework* • *Transparency issues* • *Regulatory law* • *Transparency of regulatory system* • *Removal of trade barriers* • *Environment protection regulation* • *Landlords' obligations*
Political Institutions	• *Political stability* • *Corruption level* • *Internal political stability* • *Government policies* • *Government intervention* • *External political stability* • *Certainty about future political climate* • *Bribery level*
Social/Cultural Institutions	• *Urban form/planning* • *Cultural differences* • *Information availability* • *Market transparency* • *Language barriers* • *Custom and habits* • *Way of doing business* • *Personal contacts* • *Perceived corruption level* • *Property professional level*

To summarise, the existing research on the South-East Asia property market is incomplete, segmented and lacking a synthesis (Cao 2002a, Lim et al. 2002). Most of the studies fail to explain why the property market performs as it does, let alone make predictions on its future movement. The influences of institutional environment are poorly illustrated and remain unclear in practical assessments.

2.6 Conclusion

The initial review of the literature was followed by an extensive literature search involving a much wider area, including market maturity issues, econometric issues, investment risk issues, property cycle issues and institutional studies. This was to explore all potential impacts on office investment markets, to understand the whole picture of the market and to identify its drivers.

The comprehensive literature review confirmed that no prior published research had been conducted in South-East Asia using econometric analysis. In addition, there was no published research combining econometric modelling studies, maturity issues and institutional studies on office investment markets in South-East Asia. The review pointed towards an area which was worthy of further investigation; namely, what are the determinants of the office investment market in South-East Asia. A number of factors relevant to this area of research were also highlighted.

South-East Asia has been one of the fastest growing regions since the late 1980s. This has drawn the attention of investors to the region, but despite this there has still been limited qualitative or quantitative research carried out, in particular, comparative studies. This research examines the South-East Asian office market by combining a modelling framework and institutional studies.

Previous research in this area generally falls into two groups; one dealing with econometric modelling (i.e. quantitative), and the other focusing on "institutional impact" (i.e. qualitative). Several issues with the previous research became apparent during the review. Firstly, the econometric research solely focussed on modelling, and did not consider the maturity level or other factors of the local property market. Those studies assumed that every market should be able to be modelled if there is good information available. However, the studies failed to consider the level of the property market before employing modelling analysis. Secondly, the analyses appeared to pick and choose the data to find the best fit for the model. Thirdly, whilst the previous studies have paid attention to the impact of "institutions", in most cases they refer to the role of "organisations" and "players" on property markets, rather than the impact of the general institutional environment, such as political, social, economic, financial

and legislation institutions. It was also common for researchers to assess the institutional environment only by using second-hand data and previous literature. Finally, previous studies in many cases left areas unexplained where the models did not fit reality.

Previous studies did provide some useful foundations for this research. In particular, some models demonstrated that several macroeconomic factors such as GDP, unemployment rates, interest rates, service sector output and office stock, proved to have a significant impact on the office market. Additionally, some of the studies which focussed on institutions demonstrated that there are several institutional factors which also have influence on the office investment market.

It appeared that taking a combined approach, exploring both quantitative and qualitative factors, might enhance the understanding of the office investment market as a whole; and areas where the modelling was weak might be explained by the impact of institutional factors.

Given the lack of solid data from previous studies, and the rapid changes which have occurred in the region since 1997, this research firstly will carry out primary research into perceptions and attitudes within the region, in order to identify the current level of maturity before undertaking econometric modelling. Secondly, this study will attempt to test the relationship between macroeconomic factors and office rental movements in the region. Owing to the lack of long, consistent, comparative, good quality data in South-East Asia, single equation modelling will be used. Finally, the research will assess the institutional environment for the office markets in South-East Asia in order to provide explanations of the un-quantified factors which influence office investment markets.

Chapter 3 Research Methodology

3.1 Introduction

The stated aim of this research is to find the determinants for the office investment markets in five South-East Asian cities: Hong Kong, Singapore, Taipei, Kuala Lumpur and Bangkok This chapter explains and evaluates the research methodology adopted, and discusses how the research aims have influenced the choice of methods used.

3.2 The Research Process

Methodology comprises a strategy or plan of action; it is a process of research design that shapes the choice and use of particular methods, and links them to the desired outcomes (Levy et al. 2003). Phillips et al. (1994) state the purpose of research as to "*look for explanations, relationships, comparisons, predictions, generalisations and theories*". Saunders et al. (2000) define the purpose of research as to "*find out things in a systematic way, thereby increasing knowledge*". Clark et al. (1991) argue that "*the key to successful research lies in combining a flexibility of response to changing circumstances with the maintenance of a coherent overall strategy*".

Many research textbooks represent research as a multi-stage process which must be followed in order to undertake and complete the research project, and they usually include: formulating and clarifying a topic, reviewing the literature, choosing a method, collecting data, analysing data and reporting (Creswell 1994, Bryman 2001, Saunders et al. 2000). Sims (2004) summarises a model of three approaches to the research process: general approach, quantitative approach and qualitative approach (Table 3-1).

Table 3-1: Model of Three Approaches to the Research Process

Purpose of each step in the research process	General Approach Wright 1997	Quantitative Approach Bryman 1988	Qualitative Approach Bryman 2001
Establishing the gap in knowledge and the focus for the research.	Literature search ↓	Literature search ↓	Literature search ↓
Establishing the research environment to enable the research to be conducted	The critical situation devised	Deducing a number of hypotheses to explain behaviour	General research questions ↓
Designing the study to enable data to be collected and analysed to answer the research question/s	The technical details of the research, including choice of methodological approach, selection of research participants and case study location and the method of analysis.	Expressing these hypothesis in operational terms ↓ Operationalisation of the hypotheses ↓ Selection of the subjects of the research ↓ Designing a research methodology to test the hypotheses	Selecting relevant sites and subjects
Testing the research design and analysis tools (troubleshooting)	Pilot study ↓	Pilot study ↓	↓
Data collection	Conducting the research	Conducting the research	Collecting the data
Use of statistical package	↓ Entering the data	↓ Entering the data	↓ Interpretation of data ←
Choosing appropriate statistical tests to establish research validity	↓ Statistical analysis and interpretation	↓ Statistical analysis and interpretation	↓ Conceptual and theoretical work →
Writing up stage	↓ Presenting findings	↓ Relating the findings back to confirm or reject the hypotheses	↓ Write up findings / conclusions

Collection of further data ↑ Firming up the research question(s)

Source: Sims (2004)

The research process adopted for this thesis is as follows:

1. Find a focus for the research and develop research questions and hypotheses.
2. Search and review previous literature.
3. Design the research methodology in order to answer the research questions; test hypotheses and research the objectives
4. Collection and analysis of the data.
5. Relate the findings back to the original research questions and hypotheses to confirm or reject.

3.3 Research Methods

Once the specific focus of the research has been established, the overall research paradigm must be considered. The choice of research paradigm depends on the nature of the problem to be investigated. There are two traditional methods available to the researcher when developing research strategies, namely qualitative research and quantitative research (Creswell 1994, Oliver 1997, Bryman 2001). The decision to adopt a qualitative or quantitative approach is based on which approach is the most appropriate to the research question (Bryman 1988). Berg (2001) differentiates between qualitative and quantitative research by identifying qualitative research as referring to meanings, concepts, definitions, characteristics, metaphors, symbols and descriptions of things, whereas quantitative research refers to counts and measures of things. Many researchers identify quantitative research with numbers and relationships between variables, whereas qualitative research is associated more with the exploration of ideas, concepts and meanings (Levy et al. 2003).

Table 3-2: Aspects of Two Traditional Research Methods

Qualitative Research	Quantitative Research
Research problem: How? Why?	Research problem
Literature review: • Exploratory – what variables are involved? • Constructs are messy, lacks a theory base • Research questions are developed	Literature review: • Explanatory – what are the relationships between the variables which have been previously identified and measured? • Hypotheses are developed
Paradigm: • Phenomenological/interpretative	Paradigm: • Positivist
Methodology: for example, ethnographies, grounded theory or case study	Methodology: for example, survey or experiment

Adapted from Perry 1996 (Cited in Daly 2001)

Bryman (2001) also illustrates the fundamental differences between quantitative and qualitative strategies (Table 3-3).

Table 3-3: Fundamental Differences between Quantitative and Qualitative Research Methods

	Quantitative	*Qualitative*
Principal Orientation to the Role of Theory in Relation to Research	Deductive; testing of theory	Inductive: generation of theory
Epistemological Orientation	Natural science model, in particular positivism; Numbers	Interpretivism: Words
Ontological Orientation	Objectivism: Point of view of researcher	Constructionism: Point of view of participants
Research Activity	Static	Process
Research Design	Structured	Unstructured
Research Setting	Artificial Settings	Natural Settings
	Theory ↓ Observation/findings	Observations/findings ↓ Theory
Research Data	Hard, reliable data	Rich, deep data
	Researcher distant in order to be objective	Research close in order to seek close involvement

Source: Bryman (2001)

3.3.1 Quantitative Approach

The quantitative approach adheres to the standards of strict research design developed before the commencement of the research, which is deductive and positivist (Oliver 1997, Bryman 2001). The quantitative approach tries to test the theory by identifying

or explaining the relationship (cause and effect) between variables and the results are regarded as hard and reliable (Creswell 1994, Bryman 2001). As the name suggests, the quantitative approach is concerned with quantifiable data gathered often from a large number of sources and utilises some form of statistical analysis. The quantitative approach is based on an underlying research design which is called "*correlational*" or "*cross-sectional*" (Bryman 1988). The general process of the quantitative research process normally involves theory, hypothesis, observation/data collection, data analysis and findings (Bryman 1988, 2001, Creswell 1994).

Experiments and surveys are the main vehicles of quantitative research (Bryman 1988, Creswell 1994). Bryman (1988) also mentions previous collected data, structured observation and content analysis are other tools in the quantitative approach[3-1].

The quantitative approach uses a deductive form to seek data in numerical form, which can be analysed and the results presented in a variety of ways such as charts, graphs, tables, and statistics (Oliver 1997). The concepts, variables and hypotheses are chosen before the study begins and remain fixed throughout the research. As a consequence, quantitative research techniques are suitable if the purpose of the study is to support or reject an existing theory (Oliver 1997, Bryman 1988).

In terms of this research (forecasting issue), the theory has been developed, which was mentioned in Chapter Two. The statistical process will support or reject the existing theory that covers South-East Asian cases. More details of quantitative research will be discussed in Section 3.4

3-1

Babbie (1990) defines experiments and surveys as follows:

Experiments are research methods, which involve the controlled manipulation of an independent variable to determine its impact on a dependent variable. Surveys include cross-sectional and longitudinal studies using questionnaires or structured interviews for data collection with the intent of generalising from a sample to a population.

3.3.2 Qualitative Approach

Strauss and Corbin (1990) define qualitative research as any kind of research that produces findings not arrived at by means of statistical procedures or other means of quantification. Qualitative research normally requires a descriptive discussion to answer the research question, which cannot be answered with a "yes" or "no" response. As a consequence, qualitative methods often involve participant observations and unstructured in-depth interviews (Bryman 2001). The qualitative paradigm is termed the constructivist approach or a naturalistic and interpretative approach (Creswell 1994).

Qualitative research can be constructed as a research strategy that usually emphasises words rather than quantification in the collection and analysis of data. Qualitative research emphasises an inductive approach to the relationship between theory and research, in which the emphasis is placed on the generation of theories rather than seeking to prove or disprove a previously defined theory (hypothesis testing). The main steps of qualitative research involve generating research questions, selecting relevant sites and subjects, collecting relevant data, interpreting data, conceptual and theoretical work and writing conclusions (Bryman 1988, 2001).

The qualitative methodology requires the researcher to listen to informants and build a picture based on their thoughts (Creswell 1994). The main aim of qualitative research is to provide information leading to patterns or theories that assist in explaining a phenomenon (Creswell 1994). It also aims to generate practical and theoretical truths formulated as interpretative theories (Daly 2001). Bryman (2001) illustrates the methods of data collection including observation, documentation, visual material and interviews. Millar et al. 1992 (cited in Daly 2000) summarise several interview styles: unstructured, moderately structured, highly structured and highly structured standardised. Saunders et al. (2000) reduce these to three broad categories encompassing the standardised formal interview, the semi-structured interview and unstructured informal interview.

Creswell (1994) summarises four designs of qualitative research used frequently in human and social science research: ethnographies; grounded theory; case studies and phenomenological studies[3-2].

In terms of this current research (maturity and institutional approach), the concepts, variables and hypotheses which emerge from a qualitative investigation can form the basis for testing the strength of the relationship between variables (office investment markets and institutional factors). Thus, the grounded theory research design seemed appropriate and is discussed in more detail in the following section.

Grounded theory is concerned with the discovery of theory from data, rather than starting with an existing theory and designing the research to prove or disprove it. Grounded theory methodology and procedures are now among the most influential and widely-used modes of conducting qualitative research, when generating theory is a project's principal aim (Glaser et al. 1967, cited in Daly 2000). In this approach, theories are derived from the fieldwork process, refined and tested during field work, and gradually elaborated into higher levels of abstraction towards the end of the data collection phase (Bryman 1988). The data help in the revision and restructuring of the theory, which often indicates a new line of enquiry. Theory is seen as continually developing and adapting to meet the requirements of the data. In other words, the theory emerges from, and is an almost inseparable part of, the research data (Oliver 1997). Successive interviews/observations form both the basis for the creation of a

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3-2

- Ethnographies: this method uses a flexible approach involving the study of an intact cultural group in a natural setting over a prolonged period of time by collection of, primarily, observational data. This kind of research evolves over time.
- Grounded Theory: the research attempts to derive a theory by using multiple stages of data collection and the refinement and interrelationship of categories of information.
- Case Studies: the research explores a single entity, "the case", bounded by time and activity, such as a programme, event, process, institution or social group. Detailed information is collected by using different collection procedures during a consistent period of time.
- Phenomenological Studies: Human experiences are studied through detailed descriptions of the people being studied. The process and prolonged engagement to develop patterns and relationship meaning.

category and confirm its importance; there is no need to continue with data collection in relation to that category or cluster of categories. Instead, researchers should move on and generate hypotheses out of the categories that are building up. Thus the theory is grounded on evidence from the field (Bryman 2001). Oliver (1997) argues that research design, data collection and theorising are seen as simultaneous activities in grounded theory. They are not regarded as a temporal sequence, but rather as activities which inform and relate to each other, and which are equally and mutually important to each other.

3.3.3 Multimethod Research Design - Triangulation Research

The major difference between qualitative and quantitative research is data collection. In the qualitative research, researchers have to use themselves as the instrument, but, in quantitative research, the instrument is a pre-determined and finely tuned technological tool which allows for much less flexibility, imaginative input and reflexivity (Brannen 1992 cited in Lim 2000). The debate is centred on the weakness of qualitative methods to emulate scientific methods of measurement compared to quantitative techniques. Conversely, the scientific approach of quantitative methods is criticised for failing to take into account the differences between people and is sometimes compared unfavourably with the qualitative approaches, which are more reflective of these differences, enable researchers to get closer to the people being studied, and use the correct conceptual framework (Brooker 1997). The debate between quantitative and qualitative methods of research has led to a practical approach being adopted by many social researchers: that of a multimethod approach or triangulation of measurement, which incorporates both paradigms. This approach aims to overcome the weaknesses inherent in adopting either purely quantitative or qualitative approach (Bryman 1988).

More than one method of investigation and type of data is employed when researching the same research problem. Denzin (1978, cited in Levy et al. 2003) defines multimethod as "*the combination of methodologies in the study of the same phenomenon*". Webb et al. (1966) (cited in Brooker 1997, Daly 2001, and Bryman 1988) suggest that social scientists are likely to have more confidence in findings derived from more than one form of investigation. Burgess (1982) chooses the

multimethod to describe the use of diverse methods in dealing with a research problem. The argument is that researchers should be able to adopt a range of methods appropriate to the research problem under investigation. If the researcher could produce consistent results by applying different instruments, the validity of the research is enhanced. Bryman (1988) supports this view by saying that qualitative work could be regarded as a facilitator of quantitative work; quantitative work could also be seen as a facilitator of qualitative work. Both approaches are given equal emphasis. Daly (2000) also mentions that the triangulation approach has been used in a number of studies and as such there is no apparent reason why they cannot be combined successfully. Levy et al. (2003) argue that "*triangulation may not be suitable for all research purposes; however, it is argued that it heightens qualitative methods to their deserved prominence and at the same time, demonstrates that quantitative methods can and should be utilised in complementary fashion*". Brewer et al. (1989) point out the importance of the multimethod approach as *"an arsenal of methods that have non-overlapping weaknesses in addition to their complementary*".

Kummerow (2000, cited in Levy et al. 2003) also recognises the benefits of multimethod research design, and emphasises that "*qualitative and quantitative methods are complementary and that methodological mutual respect is as valuable as racial or religious tolerance. Not only are diverse methods interesting in themselves, combining methods may lead to greater understanding and better outcomes both in research and practice. Most real-world decisions would be improved by information from both qualitative and quantitative research*".

Daly (2000) summarises the reasons for the attractiveness of multimethod approach:

- It provides a more complete picture by combining the static views of values with the procedural views gathered through interviews;
- Any bias associated with one approach will be eliminated or neutralised when used in combination with another approach; and
- The validity of the results is enhanced with the different approaches providing mutual confirmation.

For this study, the decision was taken to apply multimethod (triangulation) analysis, which combines both quantitative and qualitative research designs. The first part of the research identifies the relationship between office investment market (office rental value) and macroeconomic factors, employing a quantitative approach. The second part of the research identifies the importance of institutional factors and relationship between institutional factors and office investment market activities, and a qualitative approach is applied.

3.4 Research Strategy Adopted - Quantitative Research

The first part of this research was designed to achieve Objectives One and Two and also to test Hypothesis One listed in Chapter One. Therefore, this part of the research will focus on the relationship between office rental value and macroeconomic activities. This part of the research adopts the quantitative strategy to establish which economic factors determine office rental value across the five South-East Asian cities.

Lee (1998) defines quantitative research as "*empirical research that aims to quantify relationships in the property market, which can be employed into the aggregate level (national or regional) or desegregate level (particular markets)*". In this research, quantitative analysis can help to estimate the magnitude of the impact between variables (dependent: rental value; independent variables: macroeconomic factors).

There are three conditions for applying quantitative methods: information about the past is available; this information can be quantified in the form of numerical data; and it can be assumed that some aspects of the past pattern will continue into the future (Tsolacos 1998). Econometrics is the science of combining economic theory with mathematics and statistics, and it is the discipline which attempts to establish a quantitative relationship between economic variables with the help of statistical methods, and so is appropriate for this research.

Quantitative methods can be divided into two approaches: time series and causal (also known as explanatory) methods (Tsolacos 1998). Time series methods predict future values of a variable only from historical values of itself, and are basically pattern fitters, projecting past patterns into future values.

Causal methods statistically relate one or more variables to the variable to be forecast. The value of causal modelling is that it introduces external factors into the forecast. This type of method is usually good at discerning turning points in data, and is very popular in analysing property markets (Tsolacos 1998, Lee 1998, Hetherington 1989). Time series models can often be used more easily to forecast, whereas causal models can be used with greater success for policy and decision making (Lee 1998).

Whenever the necessary data are available, a forecasting relationship can be hypothesised either as a function of a time series or as a function of explanatory variables. In time series models, there are no other external factors which need to be defined. However, in causal modelling, it is essential to work out which factors are likely to produce a good fit for the dependent variable. Table 3-4 summarises the differences between the two methods.

Table 3-4: Summary of Characteristics of Time Series Modelling and Causal Modelling

Time Series Modelling	Causal Modelling
• Easy to Forecast	• Difficult to define the relationship
• Uses itself to predict the future	• Define the relationship between variables and try to forecast the future by explanatory variables; external factors
• No relationship will be found between different variables	• Good for policy and decision making
• Use when there is no economic information	• Very useful in property markets, because it is good at spotting turning points
• Success in stable conditions and where the data is not subject to policy changes.	• Success where economic relationship is clearly identified

Time series and causal modelling involve mathematical models. Whatever the type of modelling, various criteria must be considered when choosing the right method to run the analysis. Table 3-5 shows a general summary of the technique of time series and causal modelling (Lee 1998).

Table 3-5: Forecasting Methods Decision Criteria

Method	Data Requirement	Period			Cost	Ease of Understanding
		Short	Medium	Long		
Time Series						
Moving Average	Low-Medium	***			Low-Medium	Very Easy
Decomposition	Low-Medium	***	***		Low-Medium	Very Easy
Causal Modelling						
Simple Regression	Low		***		Low	Moderate
Multiple Regression	High		***	***	High	Difficult

Source: Wheelwright and Makridakis (1985) cited in Lee (1998)

Causal modelling is employed for the first part of this research, because of data availability, comparison studies and it is better suited to what this research is trying to establish: the relationship between macroeconomic factors and office investment markets (office rental values).

3.4.1 Causal Modelling

"*Causal (regression or econometric) models are the most popular forecasting methods used*". (Wong 2002). The basic idea of causal modelling is to define the relationship between the independent variables (Xs = macroeconomic variables) and the dependent variable (Y= office rental value). It could be written as $Y = f(X_1, X_2, X_3 \ldots X_n)$. This approach involves the use of statistical methods to quantify the relationship between dependent variables and those variables which appear likely to explain changes in the variables. The statistical techniques underlying causal modelling are regression and correlation. Estimates of relationships can be obtained by regression analysis, and regression is the most frequently used method in establishing an economic relationship among variables (Wong 2002). Regression is a method for determining the mathematical formula relating the variables; correlation is a method to measure the strength of the relationship. In other words, regression shows what the connection is; correlation shows whether it is strong enough to use.

Regression analysis calculates the effect of movement in an independent variable (X) on the dependent variable (Y), such as the relationship between price and demand/supply. The mathematical formula produced by regression analysis explains "how much" the movement in a level of the dependent variable is caused by the independent variable. When there is one independent variable, a simple linear regression is used. When there are two or more independent variables (Xs), multiple regression analysis is used. In applying multiple regression, it is assumed the relationship between Y and the Xs can be approximated by a linear relationship or a log linear relationship which provide the best fit estimates of the model parameters by minimising the error of the model, and those variables should be independent of each other. The choice of the variables and the particular specification of the model will be dictated by underlying theory. For example, office rental value would reflect the interaction of the demand and supply of the market (see also Chapter Two).

The application of regression modelling to the property sector goes back to the 1920s in US literature, when Renshaw (1920) tried to find the relationship between the value of agricultural land and four explanatory variables (cited in Hetherington 1989). However, this method was not widely employed until the 1950s, when computers were available. In the UK, the technique was not used for the property market until the mid 1980s. Most modelling research in the UK has focused on office rental markets (Tsolacos 1998, Lee 1998).

The previous research has been reviewed in Chapter Two. A single equation model of office rental determination is employed in this stage (see Chapter 2). This approach has methodological linkage with existing work.

The majority of the existing literature in office rent modelling is based upon regression analysis, because it is a superior methodology for forecasting over the longer term compared to time series modelling. There are previous works which use regression analysis to examine the relationship between office rental movement and demand and supply variables, such as Gardiner and Henneberry (1988), Giussani, Hsia and Tsolacos (1993a, 1993b), D'Arcy, McGough and Tsolacos (1997), Keogh, McGough and Tsolacos (1998), McGough, Olkkonen and Tsolacos (1998), and D'Arcy, McGough and Tsolacos (1998).

All of these works have been focussed on European, American and Australian cities. There is no published research using these methods in South-East Asian office markets. To enable comparison with the research on European cities, the same method used in the European research (multiple regression) is used in this research to define the relationship between office rents and macroeconomic activities in South-East Asian cities.

3.4.2 Selection of Variables

This research will employ six independent variables that will be modelled, which are: real GDP, unemployment rates, interest rates, prime lending rates, service sectors output and changes in office floor space. These variables were chosen mainly based on the previous research and drew support from other empirical studies reviewed.

The relationships between office rental value and macroeconomic variables have been reviewed in Chapter Two.

3.4.3 Data Collection for Office Rental Value and Macroeconomic Factors

Prime office rental values will be regarded as the dependent variable (Y). Office floor space, real GDP, unemployment rates, interest rates, prime lending rates, and services sector output will be the independent variables (Xs). The reasons these variables were chosen has been discussed in Chapter Two.

Office Market Data:

Keogh (1994) commented that yield is the proxy variable for the office investment market; however, the concept of yield is not widely used in South-East Asian cities, especially in the cases of Bangkok and Taipei. For example, most of the reports covering Bangkok did not include yield data, but in one case where it was given, a vague figure like '10% in the past 10 years' was given, without any support, which is obviously not reliable. The situation was similar in Taipei. In addition, yield normally

reflects investors' expectations, which can move randomly. Therefore, office yield might not be the best variable to reflect market conditions (Mitchell et al. 1997). As a consequence, office rental value is used as a proxy variable for office investment market in this research, as it is commonly used in previous studies and data is published widely and regularly in South-East Asia.

In this research, data collection has been a major undertaking as no single publication in the public domain covers the prime office market rental values for the five principal cities from 1980 to 2001. The availability of consistent time-series data on office rental values across South-East Asian cities is limited; few series contain the necessary comprehensiveness and consistency across markets and insightful analysis of the trends. Equally lacking are technically sound comparative analyses.

In the process of data collection, various global property companies were consulted, initially at their London offices, including Knight Frank, Vigers (GVA Grimley), CB Hillier Parker, Jones Lang LaSalle, CB Richard Ellis, Cushman and Wakefield, Colliers Jardine and DTZ. Contact details were given for Asia-Pacific offices from which to obtain office market data such as rental values, yields, and office floor space.

Many international companies are joint-ventures in the Asia-Pacific region, which made it difficult for the London offices to provide data for research purposes, because different branches have their own business information policies. Because of the business culture in South-East Asia, it was also not easy to obtain office rental values and other data directly from the offices or companies based there, because they were reluctant to share with academics and others information that they themselves had compiled meticulously for their own business purposes.

When the local offices of Jones Lang LaSalle, DTZ and CB Richard Ellis were all unwilling to release the regional information in the first stage, their regional head offices in Singapore and Hong Kong were contacted through personal contacts. In the end, the data for Singapore came from CB Richard Ellis, Knight Frank and Jones Lang LaSalle; for Hong Kong, from DTZ, Vigers, Colliers Jardine and Jones Lang LaSalle; for Taipei, from CB Richard Ellis and Colliers Jardine; for Kuala Lumpur, from Jones Lang Wootton and CB Richard Ellis; and for Bangkok, from Vigers, Jones

Lang LaSalle and CB Richard Ellis. Table 3-6 shows the information providers for the five cities and the time period that the information covered.

Table 3-6: Office Rental Data Collection in the Five Case Studies

City	Information Providers	Time Period
Singapore	• CB Richard Ellis • Knight Frank • Jones Lang LaSalle	• 1988 to 2001 (quarterly data after 1990) • 1994 to 2000 (quarterly data after 1994) • 1988 to 2001 (quarterly data after 1993)
Hong Kong	• DTZ • Vigers • Colliers Jardine • Jones Lang LaSalle	• 1991 to 2001 (quarterly data after 1992) • 1982 to 2001 (quarterly data after 1985) • 1996 to 2001 (quarterly data after 1996) • 1988 to 2001 (quarterly data after 1993)
Taipei	• Colliers Jardine • CB Richard Ellis	• 1993 to 2001 (quarterly data after 1997) • 1988 to 2001 (quarterly data after 1993)
Kuala Lumpur	• Jones Lang Wootton • CB Richard Ellis	• 1988 to 2001 (quarterly data after 1993) • 1985 to 2001(quarterly data after 1998)
Bangkok	• Vigers • Jones Lang LaSalle • CB Richard Ellis	• 1989 to 2000 (quarterly data after 1990) • 1988 to 2001(quarterly data after 1993) • 1988 to 2000 (quarterly data after 1997)

Compared to the data available in the UK, data for office rental values in Asia cover a relatively short period. The most comprehensive data came from Jones Lang LaSalle, covering Singapore, Hong Kong, Kuala Lumpur and Bangkok. Office rental values

and office floor space figures in those cites are from 1988 onwards. CB Richard Ellis also provided very comprehensive office rental data, also covering 1988 onwards but unwilling to share its Hong Kong office data. Jones Lang LaSalle was widely recognised to be the best by academics and practitioners in terms of the time period [1988 to 2001], consistency and the quality of the data. The rest of the data covers shorter periods. However, the trends of the office rental values display the same patterns (see Appendix One). Data from Jones Lang LaSalle will therefore be employed for the Singapore, Hong Kong, Kuala Lumpur and Bangkok markets.

Owing to the limited office rental values available and relatively short period of time for the Taipei office market, data from CB Richard Ellis was the best and so will be used in this case.

The data on office rental value for the Singapore, Hong Kong, Kuala Lumpur and Bangkok markets are net rents per square metre *per annum*. Office rental values for Taipei are also net rents while the value is *per ping*[3-3] per month.

Economic Data

The financial crisis in 1997 showed, in part, the consequences of poor data availability (JLL 1998). High quality, consistent data across the region was lacking; and without it, there was little chance of effective economic management in a globalised world economy.

In assessing the current and historical economic data for the five selected cities, there is a lack of comprehensive and reliable data either at national level or city level. At first, some international organisations' databanks were searched (such as World Trade Organisation, World Bank, Asian Development Bank, International Monetary Foundation). Although those organisations provide macroeconomic databanks, Taiwan was absent from the data sets in most of the searches. In addition, most of the free information was only available after 1998. The National Data Information Centre for academic institutions at the University of Manchester was also consulted, but

[3-3] 1 ping = 3.3057 square metres

Taipei and Bangkok were not in their databank either. Moreover, there were a few years' data missing for the other cities.

In the second stage, government websites were consulted; however, the data published only went back to approximately 1995, and most of it was only annual. Several emails were sent to the government websites in order to obtain more comprehensive data, but no responses were received from any, after three attempts. The Departments of Statistics in Singapore and Hong Kong provided the most detailed macroeconomic data on their websites. There was no city macroeconomic information available for Taipei, Kuala Lumpur or Bangkok. As a consequence, national data had to be used for these three analyses which might have an impact on the accuracy of the modelling results, as the office data focuses on the prime office markets in the CBD areas of the cities. Singapore and Hong Kong are city based countries; therefore, the national data should be more representative in this analysis.

Grosvenor Property Ltd. London provided consistent macroeconomic data for the five selected cities, including real GDP, interest rates and prime lending rates, obtained from government statistics offices. In addition, the Asian Development Bank (ADB) publishes "The Key Indicators of Developing Asian and Pacific Countries". This gives comprehensive annual statistics with consistent data for the five chosen countries. Grosvenor's real GDP data were used in all cases. Unemployment rates for the five cities were obtained from Asian Development Bank Publications. Prime lending rates and discount rates were used as interest rates in the five cities, and were obtained from central banks (Taiwan, Thailand, and Malaysia) and government departments of statistics (Hong Kong and Singapore), also offered by Grosvenor Property, London. Real GDP contributed by the finance sector is used as the variable of service sector output, and was obtained from Asian Development Bank Publications. These economic data were provided on an annual basis.

Table 3-7: Economic Data Collection for the Five Case Cities

Variable	City	Source
Office Floor Space	• Singapore • Hong Kong • Taipei • Kuala Lumpur • Bangkok	• Jones Lang LaSalle • Jones Lang LaSalle • CB Richard Ellis • Jones Lang LaSalle • Jones Lang LaSalle
Real GDP	• Singapore • Hong Kong • Taipei • Kuala Lumpur • Bangkok	All information is from Grosvenor Property, London.
Unemployment Rates	• Singapore • Hong Kong • Taipei • Kuala Lumpur • Bangkok	All information is from the Asian Development Bank Publications
Interests Rates	• Singapore • Hong Kong • Taipei • Kuala Lumpur • Bangkok	All information is from Central Banks or Departments of Statistics in each city provided by Grosvenor Property, London.
Prime Lending Rates	• Singapore • Hong Kong • Taipei • Kuala Lumpur • Bangkok	All information is from Central Banks or Department of Statistics in each city provided by Grosvenor Property, London.
Services Sector Outputs	• Singapore • Hong Kong • Taipei • Kuala Lumpur • Bangkok	All information is from Asian Development Bank Publications.

3.4.4 Establishing a Causal Relationship

The theoretical part of the quantitative element of this research is focussed on the demand and supply relationship. When property markets are in equilibrium, changes in demand will tend to generate new supply. Before new supply reaches the markets, the price will increase. However, when markets are in disequilibrium, the demand and supply relationship will be unbalanced, which will potentially result in over supply or shortage of property in the market. This will cause fluctuations in the price (Fisher 1992, Giussani et al. 1993a, 1993b, Keogh 1994, Morrison 1994, Keogh et al. 1998, D'Arcy et al. 1998). Office rental values in the short term exhibit similar results when there is imbalance in the office market.

In this study, a single-equation model is adopted (See Chapter Two). Office rental values can be determined by the interaction of demand and supply factors which affect office rental markets. In this model, office rental values in each South-East Asian city are determined by demand-side factors (Demand $_i$) and supply-side factors (Supply $_i$) affecting its office market in period t. Thus

$$Rent_{it}=f\ (Demand_{jit},\ Supply\ _{lit}) \qquad (1)$$

where Rent $_{it}$ is the net effective office rent in city i in period t and j is the number of demand side variables; l is the number of supply side variables, and t is time.

Assuming that the relationships between variables are linear, the rental level can be expressed in the following terms:

$$Rent_{it}= A +B* Demand_{jit}+ C * Supply\ _{lit}+\ e \qquad (2)$$

where Demand j represents demand-side variables in city i; Supply l represents supply-side variables in city i and e is an error term.

Equations (1) and (2) provide the general model of the single-equation for the South-East Asian cities empirical investigation. This model is similar to that constructed by Giussani et al 1993a, 1993b, D'Arcy et al. 1994, Morrison 1994, Keogh et al. 1998, D'Arcy et al. 1998.

The models of office effective rents include both demand-side variables and supply-side variables. In our case, net office rents are used. Real GDP (GDP), the rate of unemployment (U), interests rate (IR), lending rates (LR), and service sector output (Ser) are the proxy variables of the demand-side. Changes in floor space (FS) is the proxy variable of the supply-side.

Substituting the above variables into equation (2), it emerges as:

$$Rents_{it} = A + B * GDP_{it} + C * U_{it} + D * IR_{it} + E * LR_{it} + G * Ser_{it} + H * FS_{it} + e \quad (3)$$

where i represents different cities and t represents different periods.

There are two problems associated with this type of approach. Firstly, the time series data for South-East Asian cities are limited to 14 annual observations from 1988 to 2001. On such limited data, equation (3) will have a lack of degree of freedom and the results will be affected. Secondly, there are also likely to be close relationships between dependent and independent variables in equation (3), suggesting that there might be a multicollinearity problem in this equation (Giussani et al. 1993a, 1993b D'Arcy et al. 1994, Morrison 1994). In order to resolve this problem, it is reasonable to estimate the effect of those dependent variables individually on real office rental value. The equation can be explained as:

$$Rent_{it} = A + B * Variables_{ljit} + e \quad (4)$$

$$Rent_{it} = A + B * Variables_{lji(t-1)} + e \quad (4\text{-}1)$$

$$Rent_{it} = A + B * Variables_{lji(t-2)} + e \quad (4\text{-}2)$$

Equations (4), (4-1) and (4-2) will allow us to determine the variables which explain South-East Asian cities' office rental movements. However, because of limitations in the data, where the values of variable might naturally be rising together; the equations (4), (4-1) and (4-2) result might record a spurious correlation and bias results (Giussani et al. 1993a, 1993b, D'Arcy et al. 1994, Morrison 1994, Keogh et al. 1998, Chin 2003). In order to minimise such distortions, the first degree differenced method will be applied to all variables. The model that provides the basis for the empirical investigation is given by equation (5). In addition, one-year lag (t-1) and two-year lag (t-2) will also be examined in equations (4) and (5) to see the differences in results. Some variables might have impacts on office rental value in one-year or two-year lag. If there are not significant impacts on two-year lag, it is not necessary to carry out the three-year lag test, owing to the limited time series.

$$\Delta_1 Rent_{it} = A + \Delta_1 Variables_{ljit} + e \quad (5)$$

$$\Delta_1 Rent_{it} = A + \Delta_1 Variables_{lji(t-1)} + e \quad (5\text{-}1)$$

$$\Delta_1 Rent_{it} = A + \Delta_1 Variables_{lji(t-2)} + e \quad (5\text{-}2)$$

where Δ_1 is the first difference operator (i.e. the level of changes in the variable). After the variable that explains the largest variation in growth of office effective rents has been identified, stepwise regression will be employed (Newell et al. 1996). Using the 95% confidence level, all qualifying variables (correct signs on variables and suitable functional form) will be put into equation (6) in order to find the best fit for the office real rental value movement in each South-East Asian city.

$$\Delta_1 Rent_{it} = A + \Delta_1 Demand_{jit} + \Delta_1 Supply_{lit} + e \qquad (6)$$

Equations (4), (5) and (6) are the starting points for the empirical investigation and the empirical result will be shown in Chapter 6.

Owing to the limited time series of office rental values in the cities, it is not possible to use more sophisticated methods (such as error correction model) to carry out the rental modelling analysis.

- **Granger Causality Test**

A common problem in economics is determining whether changes in one variable are a cause of changes in another, especially in emergent markets. This problem might exist in the econometric analysis in this research. Therefore, the Granger causality test is employed to test the causality in this part of the research[3-4]. The major difference between a normal causality test and the Granger causality test is that the Granger causality test will test different lags in the variables (Newell et al. 2004).

The basic idea for the Granger causality test is that: if X causes Y, then changes in X should precede changes in Y. In order to say that "*X causes Y*", there are two conditions should be met. Firstly, X should help to predict Y. Secondly, Y should not help to predict X.

[3-4] For example, do changes in the office floor space supply cause changes in office rental value or are office rental value and the office floor space both endogenously determined?

To evaluate whether each of these two conditions holds, a null hypothesis would be tested (one variable does not help to predict the other). To test the null hypothesis that *"X does not Granger cause Y"*, we have to regress Y against lagged values of Y and lagged values of X (the unrestricted regression- equation 7) then regress Y only against lagged values if Y (the restricted regression – equation 8). If the lagged values of X contribute significantly to the explanatory power of the first regression, then the null hypothesis will be rejected and the conclusion would be that the data are consistent with X causing Y. The null hypothesis that "*Y does not Granger cause X*" is then tested in the same manner, by running the same regressions (equation 7 and equation 8), but switching X and Y and testing whether lagged values of Y are significant from zero. To conclude that X causes Y, the result should reject the hypothesis "*X does not Granger cause Y*" and accept the hypothesis "*Y does not Granger cause X*".

Unrestricted Regression:
$$Y = \sum_{i=1}^{m} \alpha_i Y_{t-i} + \sum_{i=1}^{m} \beta_i X_{t-i} + \varepsilon_t \qquad (7)$$

Restricted regression:
$$Y = \sum_{i=1}^{m} \alpha_i Y_{T-1} + \varepsilon_t \qquad (8)$$

The Granger causality test has been used in some property research, but not widely because of the need for a longer time series of data for reliable results, which is not always available (Newell et al. 2004). In this research, X will be the independent variables, such as GDP, unemployment rates, interest rates and lending rates and Y will be effective rent in each city. Although there are limited amount of time series data in this research, this test still gives an indication as to whether or not Granger causality exists. The results of the Granger causality test are shown in Chapter 6.

3.5 Research Strategy Adopted - Qualitative Research

Kummerow (2000, cited in Levy et al. 2003), recognises the inherent limitations of econometric models and in particular highlights issues relating to data limitations, misspecification, structural changes and other concerns that impose limits on what models can tell us. Therefore, some researchers recognise qualitative research as being useful in seeking out omitted variables.

Rao and Miller (1973 cited in Levy et al. 2003) state that "*the true regression specification can be estimated only when a researcher knows the truth and has data on all variables to estimate. A common situation is one in which the researcher has left out variables either because he is unaware of their presence in the true specification or because he does not have data for including them in the estimated equation*".

Owing to the rapid structural changes in many South-East Asian countries, there is no one source which describes the institutional characteristics of regional property markets, and no publications providing the whole picture and up to date information in South-East Asia. Therefore questionnaire analysis is necessary in this research to obtain up to date primary data to assess market maturity and the institutional environment in the region. The questionnaire design was based on those characteristics which assess the maturity level in South-East Asia cities. As for the financial market structure and the level of liberalisation factors, they were assessed using institutional environment analysis.

Office markets cannot be completely explained solely by econometric models. There are some key elements which cannot be explained by quantitatively but which affect office investment markets significantly (Seek 1996a, 1996 b). In the case of South-East Asia, the range of the data, quality of the data, and the availability of the data are not as well-developed as mature markets such as London, Paris and American cities. This reduces the accuracy of the forecasting and modelling. In addition, the level of market transparency, the level of tax, political stability and other institutional factors would also have an impact on office investment markets (Lee 2000, Seek 1996a, 1996b, Lim 2000, Lim et al. 2002).

The literature review has already established that market maturity levels and institutional environments impact on office investment markets. The theoretical basis for the maturity assessment and institutional assessment has been discussed in Chapter 2-3 and Chapter 2-4. The survey analysis addresses two main issues. Firstly, the level of property market maturity is examined. This section includes market openness; the level of services provided by property professionals (property professional level); the presence of property intermediaries; information availability; information standardisation; market value; development stability; flexibility; quality of property products and user and investor opportunities. Secondly, the survey examines the importance of the different institutional factors and the different levels of institutions affecting office markets across the five selected cities. It also identifies the importance of different institutional factors in different cities. To improve accuracy, market participants actually working in the region were involved in the survey. This is discussed below.

In order to gather information about the importance of the institutional factors and make assessments of objective views, questionnaire methods were employed in this part of the research, which is regarded as the common method to gather qualitative data. The advantage and disadvantage of questionnaire surveys in social research have been discussed (Stubbs 1998, Oppenheim 1992, May 1993). Questionnaires are an inexpensive way of gathering research information, but they often have a poor response rate, often 40% or less (May 1993, Saunders et al. 2000). In some cases, response rates could be as low as 10% (Moser et al. 1971, cited in Stubbs 1998). May (1993) stresses that questionnaire design must be the subject of detailed consideration to avoid any bias and unnecessary simplification of the research task.

3.5.1 Questionnaire Design

Data were collected from primary sources. In order to discover the determinants of office investment activities in a broad institutional context, the questionnaire was designed to obtain fair and objective views from property market researchers across the region. Researchers from property consultancy firms active in the five cities participated in the survey.

3.5.2 Questionnaire Method

One of the first decisions to be made in designing and conducting a survey is that regarding the mode of administration. The choice is between interviewer administration (either face to face interview or by telephone) or self-completion (with delivery of the questionnaire by post or by email) (McColl et al. 2001).

In the first instance, the following types of surveys were considered:

- Telephone survey: telephone surveys seem to have a higher response rate than mail survey (Saunders et al. 2000, McColl et al. 2001, Oppenheim 1992). This kind of survey will be appropriate when "trained" interviewers are available (Boon 2001, McColl et al. 2001). It is also suggested that it might eliminate the travel cost and time compared to face-face interviews. "*This kind of survey is sensitive to errors caused by interviewers who fail to read questions exactly as they are worded in the questionnaire*" (Boon 2001). Some property research has used this method previously, such as the study of property professional services in the UK (D'Arcy 2003). Telephone surveys can be considered if the response rate of computer-assisted personal interviewing (by email or on-line survey) is low and if face to face interview is impossible. However, the cost of a telephone survey can be high; especially where studies cover several different countries.

- Face to face surveys: "*Face to face interviews would overcome the problem of a survey population who are not likely to respond willingly or accurately by phone, mail, email or where there have been difficulties in compiling lists of the survey population*" (Boon 2001). This method can be used when interviewees prefer to answer the questionnaire face to face, rather than completing it by themselves. This method is excellent in terms of collecting data because the interviewer has some control over the quality of the answer. Interviewers may be able to provide respondents with a more convincing explanation of the purpose of the study than would be possible in a covering letter for a self-completion questionnaire. Interviewers can also enhance the quality of data collected by offering clarification and explanation of any

problems arising in the course of the interview, so reducing misunderstandings; and they can also ensure questions are answered in the correct sequence (Saunders et al. 2000). This type of survey is expensive to administer and really suited only to well-funded projects where experienced interviewers and professional help are available, or where a relatively small sample size is involved (Boon 2001). Response rate is generally higher than other methods, because of the interaction between interviewers and interviewees. A downside of face to face surveys is that this method gives researchers the opportunity to ask more complex and open questions, which can lead to them collecting unnecessary information for the study (Saunders et al. 2000).

- Mail Survey (Postal Survey): Mail survey is the most common mode of administration for self-completion questionnaires (McColl et al. 2001, Saunders et al. 2000, Oppenheim 1992). This type of research is low cost compared to telephone or face to face interviews. Mail surveys may also be quicker than interview surveys, although time must be allowed for late returns and follow-up attempts. It is easier to implement and requires few personnel compared with face to face surveys. On the downside, some people are less likely to respond to the questionnaire, so non-response can be a serious problem. Once the questionnaires have been dispatched, researchers have little control over what happens to them. It is impossible to ensure that the intended respondent fills out the form or to find out whether he or she has received advice from others in answering the questions. There is no control over whether the forms will be filled out correctly as the respondent may skip difficult questions or inadvertently overlook some items. Although mail surveys may be quicker to perform than face to face surveys, the use of follow-up mailings and telephone reminders to boost response rates means that the data collection period could extend over several months. The main argument against using mail surveys is that the response rate is low; achieving a response rate of over 30% is considered good for this type of survey (McColl et al. 2001, Boon 2001, Saunders et al. 2000, Stubbs 1998). Many mail surveys do not achieve more than 50% response rate and even when

respondents do return questionnaires; their forms may be incomplete, illegible or incomprehensible.

- Delivery and Collection Surveys: Questionnaires are delivered by hand to the interviewers. Respondents then complete the questionnaire on their own and either return it by post or leave it to be collected. The advantage of this type of survey is that it will enhance respondent participation which will increase the response rate. This particular type of survey is suited to small areas and a small sample size (Saunders et al. 2000, Boon 2001, Oppenheim 1992).

- On-line Survey: The use of computer-aid systems to do surveys has increased sharply recently (Saunders et al 2000, McColl et al. 2001). In this approach, the interviewee uses a computer terminal rather than a paper questionnaire and keys in answers to questions as they appear on the screen. The response rate normally is around 30% but if it has been sent to the right person using email, the response rate can be higher. This type of approach is likely to have closed questions, without many complex questions, to make it easy to answer and to control the quality of response. However, there are some disadvantages of on-line surveying. Firstly, they are often perused before being answered with the respondent skipping questions or answering then out of sequence which may bias the response. Secondly, there is little control of the quality of data gathering (Oppenheim 1992).

In the end, the decision about which methods to use was made on the basis of obtaining the best response rate with quick and low cost response replies. Therefore, this research was conducted mainly by on-line survey, with a follow up set of face to face interviews in the region at a later stage.

The decision to do this was based on the following facts:

- The distance between the UK and South-East Asia might lead to significant delays in sending and receiving replies if a mail survey was used.

- This survey targeted a relatively small number of experts across the five cities. Therefore, using an on-line survey made it easier to track the response rate (The survey target group will be discussed in a later section).

- The participants' email addresses were obtained from company directories or previous contacts; therefore, it was easy to email the questionnaires directly to the individuals.

- If the participants preferred not to complete the questionnaire online, then face-to-face interviews were conducted while field work was conducted across the five case cities. This boosted the response rate. Additionally, interviews provided opportunities to go into more detail with participants.

- Using email, it is possible to send out the surveys, deal with any questions and arrange face to face interviews within a short space of time, which helps minimise the problem of survey fatigue.

As a consequence, this questionnaire survey lent itself to a combination of a face-to-face interview and on-line survey approach. The former offers flexibility and allows the interviewer to be certain that the respondent has understood the content of the questions and the purpose of the research. Therefore, the quality of data would increase through direct control. A personal interview approach enables queries to be answered and thus consistency is further promoted through the presence of the researcher (Oppenheim 1992). Moreover, the process of interview can be monitored and standardised. On the other hand, the online survey is more economical. The questionnaire is designed to be comprehensive and self explanatory in nature.

All questionnaires were sent via email in December 2002, and participants were asked to respond in the questionnaire regarding the situation in the past 10 years (between 1992 and 2002). This was in order to reduce the potential influence of current events outside or unrelated to the study (which could impact on different people in different ways) that might alter respondents' perceptions of their experiences, opinions or attitudes. This ensures that the data are comparable.

3.5.3 The Sample Population

The target group for this survey was people working in the research departments of property consultancy firms operating in the five cities. Property consultancy firms are an important actor group for providing market information and also are frequently engaged by investors. Therefore, property consultancy firms deal with their local market information on a daily basis, and can speak generally about local market conditions and structures. They form a natural repository of knowledge. The individuals in research departments have daily exposure to market conditions, and so would be familiar with the current situation and changes in the target cities. Many firms also have good international connections, are influential in the market and have knowledge of global research standards which would benefit this comparative study. Their views on the market may tend to be more practical and current than academics.

The process of contacting professional associations and organisations relating to property consultancy activities eventually led to establishment of the sampling frame. In addition, expert advice from academics and professional practitioners in the UK and Australia provided considerable assistance throughout the design stage by providing useful contacts and feedback. This also helped to identify major property consultancy firms active in the region.

The primary sampling frame was obtained from the "Directory of the Society of Property Researchers", the "Directory of the Royal Institution of Chartered Surveyors" and "Directory of the Pacific Rim Real Estate Society" listings, with the research department of each major property consultant firm being the main target for this survey. The established international property consultancy firms provide consistent quality of services, with an extensive network of offices around the region.

The target respondents included managing directors, vice presidents, heads of research, senior researchers, and market research analysts of the companies participating. This was an important aspect of quality assurance for the survey and ensured that the respondent was experienced and familiar with investment market conditions and consequently would be able to provide a good insight into office

investment market activity. A total of 81 contacts were obtained from those recommendations and listings.

Once the target consultancy firms were identified and contact lists obtained, letters were sent via email in order to explain the research being undertaken and to ask if they would be able to assist. Several email contacts followed each letter to ascertain if they would agree to participate in the survey work. Then the questionnaire and covering letter were sent out to the recommended researchers in the Asia-Pacific region. Additionally, some local firms in Bangkok and Taipei were also approached to participate. This was necessary because of the lack of international consultancy firms present in these cities.

3.5.4 Questionnaire Design

The aim of the questionnaire was to provide an objective view on the level of maturity and the institutional environments in the five cities. With regard to the questions posed, a design process was adopted which allowed the questions to develop around the research aims in order to answer the research questions. Each aim was considered in isolation, and the information required to fulfil the aim was assessed. Once specific focuses were identified for a set of questions, the questionnaire design proceeded with a consideration of question styles. May (1993) outlines the advantages and disadvantages of different question styles, shown in Table 3-8.

Table 3-8: Question Style

	Advantages	Disadvantages
Closed Questions	• Useful for testing research hypothesis • Less interviewer training • Make group comparison easy • Require less time • No extended writing • Low costs • Easy to process	• Loss of spontaneous responses • Bias in answering categories • Sometimes crude • May irritate respondents
Open Questions	• Freedom and spontaneity of the answer • Opportunity to probe further at the subsequent interviews • Useful for testing hypothesis	• Time consuming • Costly of interviewee time • Coding – costly and slow to process, and may be unreliable • Demand more effort from respondents

Source: May 1993

The closed question style was utilised in this survey. This is because the level of maturity and institutional environment would be assessed by a ranking system, which would be easier to process. In addition, closed questions are useful for group comparison and less time consuming to complete. In order to gauge opinion and the significance of various influences in the regional property market, most questions were structured using Likert Scaling techniques. Likert Scales are widely used in the behavioural sciences to measure the influence people attach to certain characteristics. This is relatively simple to construct, use and interpret. The major advantage of Likert Scaling techniques is the ability to provide precise information about respondents' attitude to a variable (Lim 2000, May 1993). This provides more scope for the respondents to express an opinion and at the same time retain a sufficient amount of control to ensure that the information is capable of being analysed (Moore 1983, cited in Lim 2000). As is common with these types of attitude/opinion questions, this survey used a five point scale for respondents to express their opinion about various factors. A scaling technique was then used to produce a ranking of factors, and mean scores were computed for each variable and then ranked.

There is some debate about whether the numbers used in these systems are treated as ordinal or interval. In the behavioural sciences and in marketing research, most

researchers treat the data as interval (Churchill 1991 cited in Lim 2000, Oppenheim 1992). This research treated the data as interval, because the interval system allows the utilisation of more powerful statistical tests which would not be possible if the data were treated as ordinal, and because the scale contains descriptive terms which mark a gradual progression in magnitude, with 1 representing very developed/important and 5 representing the least developed/important (Lim 2000). Use of a five point scale is the finest grading possible and clearest way of expressing the specific question type (Oppenheim 1992).

The questionnaire used in this survey consists of two parts (see Appendix Two). The first focuses on general background information for each participant, while the second part seeks to assess the importance of the institutional context on office investment market activities and the level of maturity.

In the first part of the questionnaire, the respondent was asked to identify the research activities of each firm and the level of familiarity with each city.

In the section two, attitudinal questions were posed about the importance of a series of factors impacting to office investment markets. Market maturity was assessed , and also 18 institutional factors were assessed in order to evaluate their general importance in office investment markets. In this instance, the respondent was required to rank a series of factors suggesting the possible rationale underlying institutional factors. To further assist cross comparison between the various cities within the South-East Asian region, respondents were asked to evaluate those institutional factors in each city in order to build a rank table. The cluster analysis and the analysis of variance (ANOVA) would be employed in Chapter 5 and Chapter 7 to identify the differences between cities.

- **Cluster Analysis**

Cluster analysis classifies a set of observations into two or more mutually exclusive unknown groups based on combinations of interval variables and it is also an exploratory data analysis tool for categorising observed data into meaningful structures, to develop taxonomies in an objective way.

Each cluster describes, in terms of the data collected, the class to which its members belong; and this description may be abstracted from the particular to the general class or type.

Cluster analysis is used for some parts of questionnaire analysis in Chapter 5 and Chapter 7 in order to give a more rigorous scientific method to identifying different groups. Hierarchical clustering methods are applied in this analysis because they do not require preset knowledge of the number of groups. The results of the application of the clustering technique are best described using a binary tree or vertical icicle. Although the number of responses is relatively low for the requirement of cluster analysis (because some respondents do not answer for all five cities), cluster analysis still gives us a useful indication of the different groupings.

- **Analysis of Variance (ANOVA)**

The analysis of variance (ANOVA) procedure produces a one-way analysis of variance for a quantitative dependent variable by a single factor (independent) variable. Analysis of variance is used to test the hypothesis that several means are equal. ANOVA is also used to determine what differences exist among the means.

In this part of research, ANOVA is used to examine the differences between cities. The null hypothesis is that there is no differences between different groups. If P value is less than 0.05, the null hypothesis is rejected. In other words, there will be significant differences between different groups. This analysis is employed through Chapter 5 and Chapter 7.

3.5.5 Pilot Survey

Before using the questionnaire to collect data, it is customary and important to pilot test it (Saunders et al. 2000). Oppenheim (1992) says "*In principle, almost anything about social surveys can and should be piloted*". This step will ensure that the questions can be fully understood by respondents and the data collected can be fully recorded. This survey focused on the researchers in property consultant firms across

the five cities. The sample size was relatively small. Therefore, pilot-testing was best done with a person in a similar situation and willing to help.

Pilot participants were asked for comments on the layout, content and relevance of questions and time taken to complete the questionnaire.

The first questionnaire was tested on Mr Hsu-Wen Peng, who is currently working in the Taipei office of CB Richard Ellis. His comments were that the questionnaire was somewhat too long, and required a certain level of professional knowledge in order to complete. In addition, he suggested that the layout of questionnaire could be made more user-friendly, and made easier for respondents to answer and mark it on-line.

The questionnaire was also piloted by Professor Paul McNamara OBE, who is currently head of research at Prudential Property Investment Managers in London. The original questionnaire covered seven major South-East Asian cities: Singapore, Hong Kong, Taipei, Kuala Lumpur, Bangkok, Manila and Jakarta. Professor McNamara suggested that this was too many, and the list of cities should be reduced to five (the cases in this thesis); therefore, Manila and Jakarta were deleted from the list to simplify the questionnaire (Manila and Jakarta are not included in this research; therefore, those two cities were removed from the questionnaire). Secondly, he suggested that some questions be split into two for clarity. Thirdly, the original questionnaire asked for some irrelevant information; therefore, in the final version, several unnecessary questions were deleted, such as one about risk and rate of return across the cities. Fourthly, due to the characteristics of the survey, the people to be targeted would need to have a broad knowledge of all five cities in South-East Asia. Pilot testing showed that it would be extremely hard to find people who could answer such detailed questions for all five cities. He suggested that the sample should be equally spread across the five cities in order to balance the results. Originally the questionnaire did not specify a time period for responses to cover, and he suggested that the questions focus on a ten year period, such as 1992-2002, which should be easier for respondents to remember, and would prevent periods of extreme volatility in the region prior to this from skewing the data.

The pilot survey provided a realistic assessment of the practical difficulties of the main survey; particularly in gauging the time required for completing and administering the questionnaire. The pilot survey process ensured the removal of ambiguities, bias and duplications. The feedback from the pilot survey was used to establish the final version of the questionnaire for the main data collection phase.

3.5.6 Non-Responses

To deal with the issue of non-response, a new email was drafted asking for help and also including a copy of the original questionnaire in case the first one had been lost. Some respondents were happy to answer the questions, but requested face-to-face interviews. Because the survey period covered Chinese New Year, a holiday period, a third letter was again drafted for non-responses. After these three attempts, no further steps were taken to gather data.

3.5.7 Responses

The questionnaire was sent out to a total of 81 researchers at property consultancy firms in the five cities. The initial sampling frame consisted of (21) in Singapore; (19) in Hong Kong; (12) in Taipei; (16) in Kuala Lumpur and (13) in Bangkok. The participant firms include major international property consultancies such as Jones Lang LaSalle, DTZ, CB Richard Ellis, Knight Frank, and Cushman and Wakefield, Chesterton.

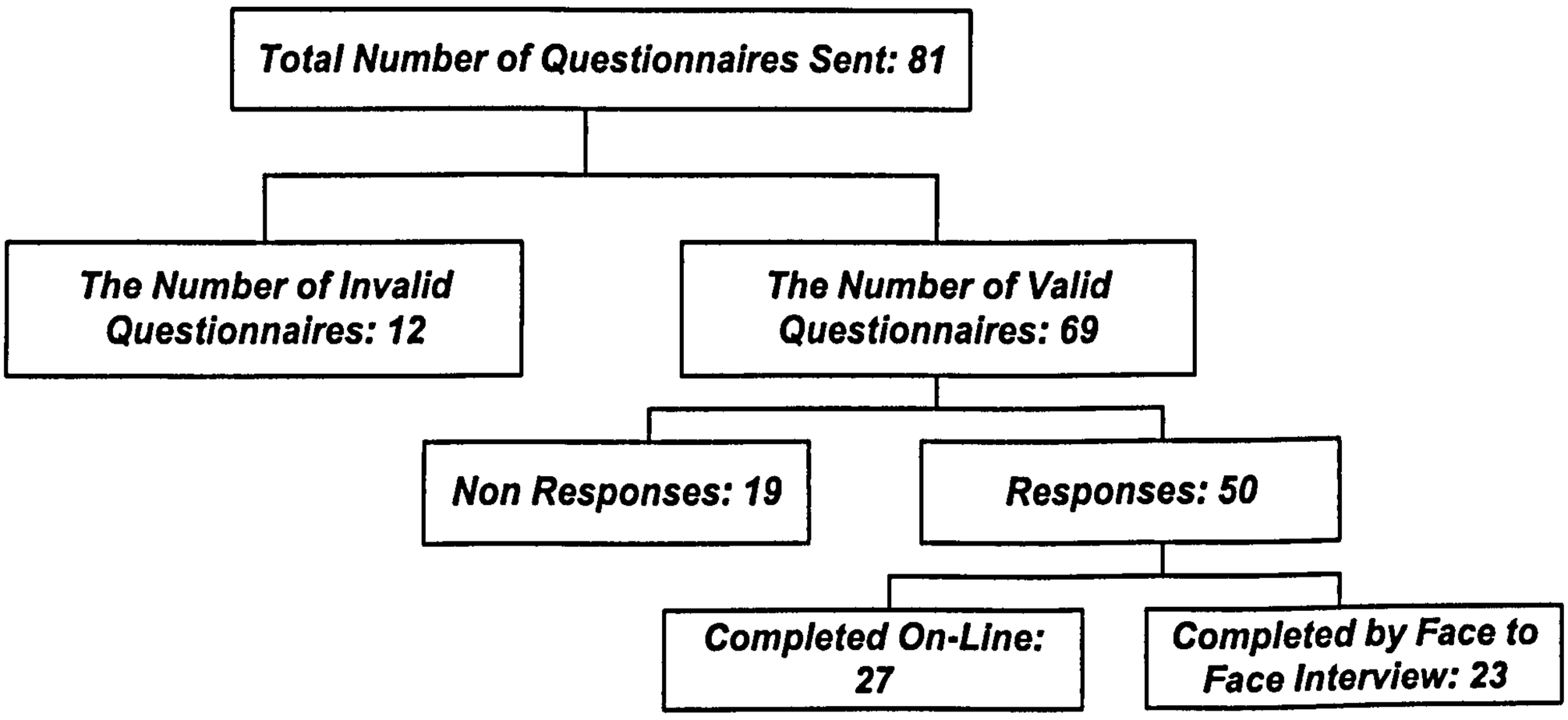
Of the 81 questionnaires sent, 12 (14.81%) were returned unanswered, because the researchers approached had left their jobs. Therefore, the total valid sample was 69. Within this total, 19 of 69 (27.53%) did not respond after three attempts at contact. A total 50 of 69 (72.46 %) responded either by email (online survey) or face-to-face interview. 27 of 50 (54%) responses were returned by email, and 23 of 50 (46%) completed the questionnaire via face-to-face interview. Interviews were carried out during a field trip to the region between February and March 2003, with around 10 days in each city. Each interview took about an hour, though it often took longer than this to arrange each one.

Table 3-9 illustrates the breakdown of responses. The 50 valid questionnaires returned included 44 international firms and 6 local-based firms. The six local firms were chosen on the recommendation of market participants and other researchers.

Table 3-9: Respondents' Firms

Total Questionnaires Sent: 81									
International Firms					**Local-based Firms**				
75					6				
Returned Questionnaires: 50									
International Firms					**Local-based Firms**				
44					6				
Singapore	Hong Kong	Taipei	Kuala Lumpur	Bangkok	Singapore	Hong Kong	Taipei	Kuala Lumpur	Bangkok
10	11	8	9	7	0	1	2	2	1

Figure 3-1: Samples



3.5.8 Constraints of this Survey

There were several constraints while conducting this questionnaire survey. Firstly, the overall survey process was time consuming. It took around five months from sending out the questionnaires to completing all the field work. Secondly, the willingness of people to reply to the questionnaire varied; a few considered that the requested information was commercially sensitive, which reduced the response rates on some questions. Several people agreed to meet for interviews, but were still not prepared to

provide all the information required. Finally, there were doubts about the level of knowledge of some participants, as some respondents did not appear to understand the concepts of institutional environments and market maturity.

The detailed questionnaire analysis will be discussed in the following chapters (Chapter 5 and Chapter 7).

3.6 Summary

This chapter has explained the research methodology adopted to achieve the aim and objective of the thesis. First, the literature search was used to revise the original research aim and hypotheses of the thesis. Following from this, the research questions were developed. Next, a multimethod approach was chosen, incorporating quantitative analysis (causal modelling) and qualitative analysis (questionnaire analysis). The quantitative analysis involved the collection of second-hand data, including office market information (rents, office floor space) and some major macroeconomic factors (real GDP, interest rates, prime lending rates, unemployment rates, and service sector outputs The qualitative analysis consisted of on-line surveys and face-to-face interviews of the regional researchers in property consultancy firms. The reasoning for the research design was explained.

In the remaining chapters, the empirical work is presented. Chapter 5 concentrates on the maturity assessment for the five cities, based on the results of some parts of the questionnaire. Chapter 6 covers the econometric modelling, which will test the relationship between office rental values and the macroeconomic variables. Chapter 7 is based on the second half of the questionnaire, which focuses on how the institutional environment impacts on office investment markets, and produces a ranking for the institutional environment across the five cities.

Chapter 4 An Overview of Economies and Office Markets in South-East Asia: 1988 to 2002

4.1 Introduction

The aim of this chapter is to give an overview of the general economic situation and office markets in South-East Asia and specifically in the five cities.

4.2 Overview of the South-East Asian Economic Situation

Since the 1960s, economic growth in East Asian countries has been higher than in other regions of the world. Those economies are mainly located in North-East Asia: Japan and South Korea, and in South-East Asia: Taiwan and Singapore. During the late 1980s, the newly industrialising economies in South-East Asia, Thailand, Malaysia, and Indonesia, achieved success through sound fundamentals, such as high levels of domestic financial savings, which sustained impressive investment levels, high rates of investment and progressive economic policies. All of these factors were major contributors to the rapid growth in this region. Moreover, macroeconomic management was fairly good and their performance was very stable, providing the necessary framework for private investment.

According to the Asia Development Bank (ADB) and World Bank, the countries in South-East Asia can be classified into some homogenous groups in terms of their development patterns. Hong Kong, Republic of Korea, Singapore, and Taiwan are in an industrialised group known as "Asian Four Tigers" (some literature refers to them as the Asian Four Dragons). Malaysia, Indonesia, Philippines and Thailand are "Newly Industrialised Economies".

A number of key economic trends can be observed over the past decade. With the exception of the financial crisis period, the region's GDP grew at over 6% per year. This was faster growth than in Latin America, which grew at 3.4 percent, Sub-Saharan Africa at 2.4 percent and the United Kingdom at 2.2 percent (World Bank 2003, Asian Development Bank 2001). The remarkable performance of this region was largely within the four Asian Tigers, Newly Industrialised Economies (NIEs) and People's Republic of China (PRC).

Since the early 1990s, developing countries have experienced strong increases in capital flows, as many of them implemented strong macroeconomic and structural reform programmes. Capital inflows to South-East Asian countries have dominated such flows into the developing world. For example, capital flow to APEC[4-1] countries accounted for around 85% of the capital inflows that went to developing countries (ADB 1998). In addition, international private capital flows reached a total of almost $300 million and more than doubled in real terms between 1991 and 1996, owing to the result of the more open global financial system and the rapid growth rate of Asian emerging market economies (Lim 2000). Table 4-1 demonstrates the GDP growth in the 1990s for South-East Asian region.

Table 4-1: Growth rate of GDP in South-East Asia (percent per year)

Group	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Avg.
Asian Tigers	7.3	7.9	5.8	6.2	7.4	7.4	6.3	5.8	-2.9	7.9	8.4	6.14
NIEs	8.2	6.6	6.3	6.8	7.5	8.4	7.4	3.5	-9.0	3.1	5.1	4.90
PRC	3.9	8.0	13.2	13.4	11.8	10.5	9.6	8.8	7.8	7.1	8.0	9.28

Source: Asian Development Bank

The PRC, NIEs and Asia Tigers recorded remarkable and sustained growth for most of the decade until the crisis of 1997. Recovery from that crisis was fairly rapid, demonstrating that this region is still favourable for investments, permitting a strong export-led recovery. Strong domestic savings are the other major feature within those countries, which range from 30% to 50% of GDP (ADB 2001).

Trade and openness have contributed to economic growth in the region (ADB 2001). The term "openness" can be defined as the sum of imports and exports as a percentage of GDP. According to ADB (2001), Singapore and Hong Kong are in the lead within South-East Asia. Their ratios are more than 200%, because trade is the main contributor to their economic growth. Table 4-2 shows the trend of openness.

[4-1] The developing economies of Asia Pacific Economic Cooperation Council (APEC) include: Brunei, China, Chile, Hong Kong, Indonesia, Korea, Malaysia, Mexico, Papua New Guinea, the Philippines, Singapore, Taiwan, and Thailand. The APEC industrial countries comprise USA, New Zealand, Japan, Australia, and Canada.

Malaysia and Thailand have increased their openness in the past 10 years. Thailand has implemented an opening-up policy, leading to an increase from 75.8% in 1990 to 102.9% in 1999. Malaysia also experienced higher trade performance than Thailand and Taiwan since 1990s. These performances provided a stable recovery path from the crisis of 1997. Generally speaking, trade plays an important part in development in this region, in terms of growth.

Table 4-2: Openness (percent of GDP)

	1982	1990	1999
Singapore	320.5	308.5	265.6
Hong Kong	142.2	217.7	222.5
Taiwan	95.1	88.5	92.7
Malaysia	110.5	146.9	217.8
Thailand	47.5	75.8	102.9

Source: Asian Development Bank (2000)

Private capital is important to achieve successful growth in this region. Since the 1990s, the majority of capital going to developing nations around the world has been in the form of official loans from international agencies (World Bank 2000). The NIEs had higher ratios of private capital, which boosted economic growth (Chin 1999, ADB 2001). The implementations of economic policies and structural reforms have significantly facilitated the level of foreign direct investment (Lim 2000). As a result, the high amount of capital inflows have been accompanied by a sharp increase in stock and property prices (ADB 1998). However, these capital inflows posed serious problems, as they tended to have a substantial impact on the property market, stock market and money markets, an impact that threatened the stability of the markets and the financial system as a whole. As a result, the drop in 1997 led to NIEs suffering a sharp downturn in investment.

South-East Asia experienced a strong economic recovery in 1999, marked by strong growth and a robust performance after the dramatic slowdown of 1998 (Table 4-4). Consistently strong global demand and recovering domestic demand proved to be major factors stimulating economic activity across the region. Capital moved from the old business sectors into the new economy sectors such as the Internet and telecommunications. The most obvious evidence is the stock market. Many of the South-East Asian stock markets were then dominated by the new economic sectors,

and these became one of the major tenants for the office market, especially in Hong Kong, Singapore and Taipei. However, the service sector is still a major contributor to the growth of real GDP (ADB 2001) especially in Hong Kong, Taiwan, Singapore, and Thailand. Table 4-3 shows the sectoral share of GDP in 1980, 1990 and 2000. This provides an idea of the changes in economic structure that have occurred in these countries.

Table 4-3: Sectoral Share of GDP (percent)

	Agriculture			Industry			Service		
	1980	1990	2000	1980	1990	2000	1980	1990	2000
Singapore	1.3	0.4	0.1	38.1	34.4	34.3	60.6	65.3	65.6
Hong Kong	0.8	0.3	0.1	31.7	25.3	14.6	67.5	74.5	85.3
Taiwan	7.7	4.2	2.1	45.7	41.2	32.4	60.6	65.3	65.6
Malaysia	NA	15.2	8.6	NA	42.2	51.7	NA	42.6	39.7
Thailand	23.2	12.5	9.1	28.7	37.2	41.7	48.1	50.3	49.2

Source: Asian Development Bank (2001)

Table 4-4: GDP Growth (%)

	1994	1998	2000
Singapore	11.4	0.4	5.4
Hong Kong	5.4	-5.1	3.0
Taiwan	7.1	4.6	5.7
Malaysia	9.2	-7.5	5.4
Thailand	9.0	-10.2	4.2

Source: Asian Development Bank (2001)

There is an obvious growth trend for each city from 1988 to 1996, which shows continuous economic growth at various rates (Figure 4-1). However, the real GDPs all dropped in 1998, except that of Taipei, indicating that the disturbances caused by the regional financial turmoil in 1997 affected Taipei less. Taipei did suffer a local banking problem in 2000, which may have led to the drop in its real GDP in 2001.

This chart shows that the real GDPs for the cities are quite closely related to each other, though Bangkok and Kuala Lumpur tend to show consistently higher real GDP growth than the other cities.

In conclusion, the region has recorded strong economic growth over the past decade. The Asian Tigers and NIEs suffered a setback with the financial crisis in 1997, but they soon recovered after 1999. These countries had several common characteristics in their economic performance and follow similar growth patterns (Armitage 1996, Yong 2000, ADB 2001):

- Rapid urbanisation in emerging economies
- Sustained economic growth

- Extreme population pressure
- Accelerating rate of change of social and economic structure
- An increasing share of international economic activity
- Growing affluence
- Large domestic markets
- Social and political tension
- Swift adoption of new technology and work practices
- High technology export accounting for large portion of GDP growth
- Higher initial levels and growth rates of human capital
- High rates of productivity growth

Despite the crisis in 1997 and the global economic slowdown in 2001, South-East Asia has become one of the world's most successful regions, with rapid economic expansion and huge foreign capital investment. The property market is one of the major areas attracting investment.

4.3 Overview of the Office Market in South-East Asia

"It is true to say that a buoyant economy is needed to create a prosperous property and construction industry. However, it is also true to say that a well-established property and construction sector is needed to allow an economy to develop, expand and mature by, for example:

1. *Providing suitable facilities for business and industry*
2. *Adding to the capital assets of the country*
3. *Attracting foreign capital by providing investment opportunities*
4. *Providing the physical infrastructure allowing the economy to expand*
5. *Providing the public service facilities, e.g. housing, schools, hospitals, and so on, upon which any mature society and economy depends*" (Walker et al. 1990).

From 1985 to 1997, the best performance in global terms was in the Asia-Pacific region, where the property sector and stock markets were particularly strong (Padco et al. 2000, Delhaise 1998, Huang 2000). As a consequence, foreign investment flowed

into the area in search of large profits (ADB 1998). However, the countries in the region all displayed similar problems, while the accompanying risks were high. Lending for property development and speculations proved to be a key causal factor throughout the region (D'Arcy 1998).

From the late 1980s, a massive construction boom occurred in most of the Asia-Pacific region, leading ultimately to a bad debt problem in the property sector, mainly as a result of problems in the banking system, such as poor regulations and loose lending policies (Chin 1999). Oversupply problems existed in most Asian cities, with at times over 200 million square feet of space under construction in the major cities, and an increasing vacancy rate. It is worth noting that rents were very high for certain classes of space, even by international standards. In the area as a whole, differences in property market processes, political uncertainty, and the regulation of the financial markets were all important factors, and were significant in the performance of the property market (Colliers Jardine 1997, Garran 1998, Delhaise 1998, Chin 1999).

The property market experienced high-growth in the 1990s, attracting much local and foreign capital. In some countries, an oversupply problem had emerged by 1996, but little attention was paid to it, leading to the regional financial turmoil in 1997.

According to the analysis of Knight Frank (1998), countries in the region were affected by the financial crisis in varying degrees and could be divided into three sub-groups.

The first, worst performing group includes Thailand and Indonesia. In this group, the economies showed deepening financial crisis, and the property markets dropped significantly. In the second half of 1997, the demand for property in most sectors dropped significantly. This resulted in property companies experiencing severe difficulties in repaying their loans. Easy bank credit had resulted in an excess of office building and retail shopping malls. New building had to be halted when rapidly falling currencies doubled or even tripled debt repayments, and prices fell by 30% to 40%. As a consequence, all of these markets suffered serious recession during 1998 and 1999, with negative GDP growth and major currency depreciation.

The second group comprises Hong Kong, Japan, and Malaysia, all of which were on the verge of economic deflation. Hong Kong came under increasing pressure to de-link its currency peg from the US dollar, as happened in most of the countries in the region, such as Taiwan, Indonesia, Malaysia, Thailand, and the Philippines, causing severe currency depreciation (Knight Frank 1998, Michie et al. 1999, and Delhaise 1999). Property market prices and stock markets slumped, mortgage interest rates increased leading to falls in property prices and values, while vacancy rates rose.

The third group consists of China, India and Singapore. They were also affected by the turmoil, although the market fundamentals prevailing in each of these countries differed widely. Both China and India have fairly closed markets as far as property markets are concerned, and were isolated from the regional crisis. Their domestic property markets were affected more by local factors. Singapore, with its strong currency, large foreign reserves and stable political situation was able to limit the financial damage.

After the dramatic slow down of 1998, Asia experienced a strong economic recovery in 1999, marked by strong growth and robust performance. Consistently strong global demand and recovering domestic demand proved to be the major factors stimulating economic activity across the region. According to Cushman & Wakefield Research, many prime office markets in Asia rebounded strongly from the bottom of the cycle. Most office markets in the region have digested existing office space, and the oversupply problem seems likely to be solved in the near future. After nearly halving during 1997 and 1998, rents across the region have recovered well.

In the next section, the economic situation and office market dynamics in five principal cities will be reviewed.

4.4 Singapore

The Republic of Singapore is an island nation with a total land area of 648 square kilometres at the southern tip of the Malay Peninsula with a population of around 3.1 million (ADB2001, Coface 2000).

4.4.1 Overview of Singapore's Economy

Singapore has one of the most liberal economies in the world, and operates a free enterprise system that, with few exceptions, encourages local and foreign investment. In the past fifteen years, the country has been one of the most successful economically, and ranked top for socio-political stability, economic dynamism, industrial efficiency, financial dynamism, human resources and outward orientation (Walker et al. 1991, Keogh et al. 1999b, Coface 2000, Jarvis 2003). The country managed to combine strong growth during the 1980s (apart from a recession in 1985 and 1986) with a relatively low inflation rate; and in the 1990s the economy remained solid and retained high economic growth (over 7% pa). In the early 1990s, Singapore's lending rates were among the lowest in the world, which reflected its low inflation rate. All of these factors contributed to the prosperity of Singapore and encouraged many international companies to establish offices there. The rapid development of the last 40 years reflects the special circumstances of internationalisation in the world economy, and the economic success of Singapore builds on a long tradition of free trade (Keogh 1999b).

The key foundation of the Singaporean economic structure had originally been the manufacturing sector. Yet, by 1989, that foundation had shifted to the business and financial services sectors, as had happened in Hong Kong, making Singapore the major financial centre for South-East Asia. The country steadily accumulated huge foreign reserves and ranked as developed country. GDP growth achieved 10% in 1993 and 1994, a very good result in the region (Coface 2000).

The whole South-East Asian region was hit by the currency crisis and financial turmoil of 1997, and the Singapore dollar did not escape unscathed. This situation adversely affected the stock market and also the property market (JLW 1998, Knight Frank 1998). Most of the banks raised their prime lending rates and, owing to the financial uncertainty, cut back the available loan quantum. Singapore faced slower regional demand, especially from Malaysia and Indonesia (Delhaise 1998, JLW 1998). However, the economic indicators remained favourable, and the fundamentals of its economy continued to be very stable and firm. In June 1998, the government took a series of measures to stimulate the economy. These were aimed at reducing company

costs and supporting weak sectors such as property and banking. In the meantime, the government continued its attempts to develop public infrastructure in order to maintain economic growth (JLW 1999).

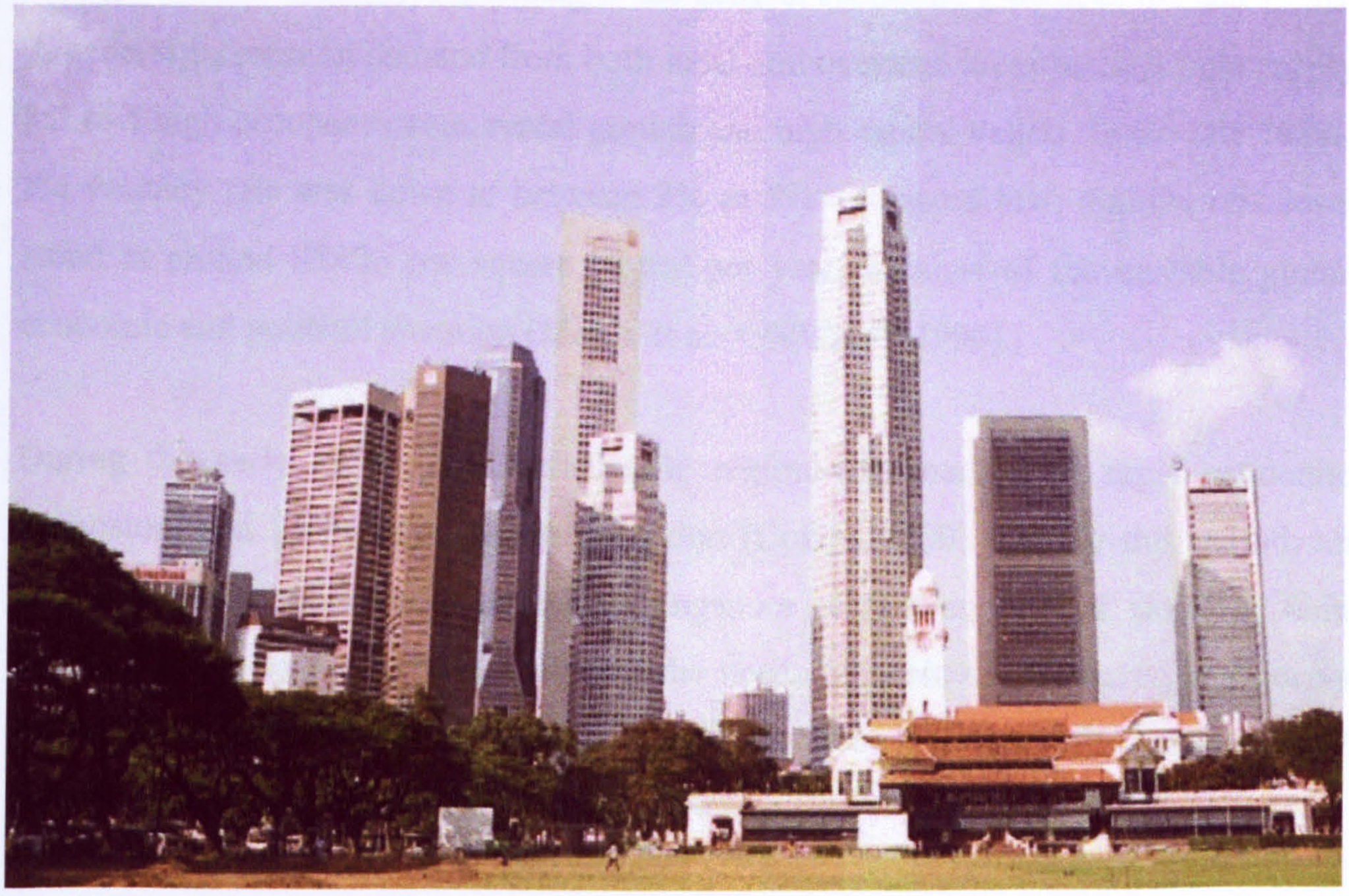
In 2001-2002, Singapore was plunged into the deepest recession in 36 years, and the real GDP shrank by 2.2% in 2001, and the unemployment rate reached over 3% (Jarvis 2003, JLL 2002). This decline may have resulted from the slowdown in the US and Japanese economies and global economic recession (Huang 2000, Padco et al. 2000, DTZ 2002).

Generally speaking, Singapore has focused on improving its competitiveness in the economic sector. It has considered efficiency and transparency to be necessities, and tried to provide up-to-date technology, a world-class infrastructure and world-class labour market (Walker 1990, Jarvis 2003, also see Table 2-9). In addition, a careful macroeconomic policy is also geared towards a stable environment to support growth and trade (Keogh et al. 1999b)

4.4.2 Overview of the Office Market in Singapore

Jarvis (2003) describes the property sector in Singapore as "*a bellwether to the health of the economy as a whole*", owing to restricted land supply and the high cost of property. The main office area for Singapore is located in the Central Business District which comprises the Central and Orchard Road Areas. Raffles Place is recognised as the core of the CBD in Singapore (Colliers Jardine 1997, JLL 2002).

Figure 4-2: Raffles Place in Singapore (Prime Office Location)



Between 1979 and 1984, property prices soared in expectation of overall buoyant economic activity. Construction activities expanded, generating rapid economic growth. As a result, there was a major increase in the stock of all types of property, including residential, commercial and industrial buildings. During this period, the banks lent extensively to the property sector, which used the property as collateral for further loans (Motha 1982, Motha et al. 1989). A property surplus had emerged by mid-1984, with the problem of oversupply in every sector. Property prices dropped dramatically. This was not just a sectoral problem, but a national crisis, as it was linked to the financial system and every construction-related industry. The office market was badly affected, with a vacancy rate of more than 15% and the prime office rent level falling to S$[4-2]200 per square metre/per year in the CBD area (JLW 1990).

In 1985, the Government organised the Property Consultative Committee to develop a plan for solving the prevailing problems, characterised by unpredictable demand, excess supply and loss of confidence (JLW 1989, Motha et al. 1989). The government subsequently created new administrative rules and adjusted property taxes in an

[4-2] Singapore Dollar

attempt to restore the market. The office market improved gradually, and eventually emerged from recession, responding to the general economic growth of the late 1980s. A general increase in demand from both local and overseas investors and tight supply led to a high occupancy rate, rental growth and high capital values. In the late 1980s, the vacancy rate was down to between 2% to 5% - a record low; and the rent level stood at around S$400 per square metre/ per year, because of the unstable global economic and political situation (Motha et al. 1989, JLW 1990).

During the early 1990s, the Asia-Pacific region was marked by rapid economic expansion, and Singapore was no exception (Coface 2000). During this period, an active building programme equipped Singapore with a substantial stock of high standard office accommodation to meet the needs of business. However, rent levels decreased slightly because of additional new supply in 1992 and 1993; and vacancy rates were between 5% and 10% (Colliers Jardine 1997).

Prime office rents dropped towards the end of 1993 (around S$ 490 per square metre/per year). Office rentals increased from 1994 to 1996. JLW Research (1997) said that this might be attributed to the healthier economic and stable political situation. The Wall Street Journal ranked Singapore as the second freest economy after Hong Kong, further boosting the confidence of the market. The Hong Kong factor has also played a part in the recovery of office rental values in this period. With the impending handover of Hong Kong to China, many businesses set up branch or regional offices in Singapore. Given the limited space for expansion in the Raffles Place area, rental value reached new highs (Liow 1997).

In the second half of 1997, the whole South-East Asian region was hit by the financial crisis, and the Singapore Dollar was not spared. This instability affected the stock market and in turn, the property market. The Singapore property market, however, emerged relatively unscathed from the regional financial turmoil. Office rents had fallen even before the financial crisis (standing at S$ 862 per square metre/per month in the first half of 1997). Knight Frank Research (1997) suggested that this could be the effects of oversupply having a greater influence than the regional crisis. Prices fell gradually in the office market during 1997 and 1998, but occupancy rates

remained high - about 85%. According to the analysis of JLW (1998), the fall in prices was the result of the property cycle rather than the regional financial turmoil.

In 1999, with the continuing recovery of the regional economy, the office market started to show some signs of consolidation, as evidenced by more moderate declines in prices and rents compared with 1998 levels. Due to the improved economic and market conditions in 2001, there was an improvement in the demand and occupancy rates for office space. Rents rose sharply by 3% for the prime CBD area, and the government tried to turn Singapore into the IT and financial centre of the region, further stimulating demand for office space. The office market started on a relatively positive note in 2001, supported by a limited development pipeline of 1.8 million square feet scheduled for completion in 2001. However, the downturn in the US technology industry, followed by the rapidly deteriorating international political and economic environment in 2002 filtered through rapidly to the office market. Demand from technology, media and telecommunications sectors, which were the main tenants for the office spaces, retracted significantly in 2002. This also happened concurrently in the financial and business services sectors as the pace of corporate restructuring, mergers and acquisitions gained momentum against weakening business confidence. As a result, the average rent declined by 12% in 2002 (DTZ Research 2003).

Leases for office buildings in Singapore are normally for a period of three years, with the option to renew for another three years. The rent-free period is normally between one month to six months, depending on the deal and on market conditions (CB Richard Ellis 2001).

4.5 Hong Kong

Hong Kong is located on the southern coast of China, with a population of more than 6 million people in an area of 1,084 square kilometres (ADB 2001, Tse et al. 1999). The most densely populated areas are Hong Kong Island and the Kowloon Peninsula, which are also the main commercial areas. Hong Kong became a Special Administrative Region (SAR) of China on 1st July 1997, following the expiry of a 99 year lease held by Britain (JLL 1998, DTZ 1998).

4.5.1 Overview of Hong Kong's Economy

In the 1980s, Hong Kong's economy had begun to evolve in a new direction because of its shifting economic links with China: gradually the territory started to become part of a functional economic region extending into southern China. Hong Kong's economy was sound and its GDP growth averaged over 9% pa throughout the 1980s (The Economist, 1st March, 1997), and it was regarded as an important regional and international transport and financial centre.

Hong Kong achieved high economic growth from the early 1990s, because of its workforce, entrepreneurial instincts, political stability, free economy with limited government intervention during the colonial period, sufficient provision of social infrastructure, and its location within the buoyant Asia-Pacific region. The Heritage Foundation, in its 2001 index of Economic Freedom, ranked Hong Kong as the world's freest economy - a ranking the territory had enjoyed since 1995 (see also Chapter 7.3., Table 7-10).

Real GDP growth increased gradually after the economic slowdown in China which followed the financial unheaval of 1989, and it remained steady (at around 5%) until the 1997 crisis. The overall economic situation remained virtually unchanged following the handover to China.

At the end of 1997, the local financial market was affected by financial instability. Investors began exiting the Hong Kong stock market in early September 1997 (Michie et al. 1999). This resulted in the stock market dropping by over 10% in October 1997.

Moves to impose a high penalty rate on those who short sold Hong Kong dollars pushed the overnight interbank rate to a high of 300%, and the government spent around $1 billion of its $88 billion in foreign reserves defending the currency (Knight Frank 1998, and Michie et al. 1999). As a result, the lending rate rose to 10.25% in 1998, which exerted downward pressure on both the stock and property markets (Knight Frank 1998, Delhaise 1998). Nevertheless, the government's pledge to defend the dollar with the territory's large foreign reserves helped reinforce investor confidence and maintained local currency stability.

Through 1999 and 2000, the economy was on the way to recovery, with growth continuing to be driven by exports. However, due to the global recession and rising unemployment rates, economic growth slowed down in 2001.

In general, Hong Kong is one of the largest financial centres in the world, with a major stock exchange and foreign exchange market (Colliers Jardine 1997, Tse et al. 1999). Financial services, the property sector and business services are the main contributors to high economic growth (ADB 2001).

The Hong Kong economy is very sensitive to the economic climate of other regional countries and rest of the world. Tse et al. (1999) pointed out that "*the high degree of export-orientation in the manufacturing sector, the increasing importance of financial and commercial sectors and the heavy reliance on imported raw materials and consumer goods are the three factors behind the territory's dependence on the economic conditions of western industrial nations, the US economy in particular*".

4.5.2 Overview of the Office Market in Hong Kong

The relationship of Hong Kong's property sector to the whole economy is important in defining its significance to Hong Kong's prosperity. From the earliest days of British rule, trade and property became fundamental to the development of the territory's economy. Tse et al. (1999) described the property sector in Hong Kong as "*a key barometre of political social and economic stability in a territory with a potential for considerable turmoil*". They also mentioned that the property sector has replaced the manufacturing sector as the largest single contributor to GDP.

Table 4-5: Property and Construction Sector Share of GDP in Hong Kong (%)

	1990	1995	1996
Construction	5.4	5.4	5.8
Real Estate Development/Leasing	9.7	9.9	10.3
Ownership of Premises	10.6	13.2	13.9
Total	25.7	28.5	30.0

Source: Tse et al. 1999

There are three main commercial districts in Hong Kong, which are Central, Wanchai/Causeway Bay on Hong Kong Island, and Tsimshatsui on the Kowloon Peninsula (Walker et al. 1991, Tse et al. 1999). Central is the core office area for the financial, professional services sector as well as containing the regional headquarters of many international companies. According to Colliers Jardine (1997), the Central Business District has expanded eastwards to include Wanchai and Causeway Bay. The Mass Rapid Transit system (MTR) links all the major business districts. More than 57% of the office stock in Hong Kong is of grade "A" quality.

Hong Kong has long been regarded as having high rental levels and prime office returns (Knight Frank 1998). High levels of activity pushed demand for office space to the extent where Hong Kong was one of the most tightly supplied of all international cities, with a low vacancy rate and high rental levels, owing to the small amount of land (Hillier Parker 2000, Walker et al. 1990).

Figure 4-5: Central District in Hong Kong (Prime Office Location)

In the early 1980s, a massive building programme was completed because of high economic growth, the changing structure of the economy, high demand/low supply, and the opening up of China. In 1983, the global economic recession led to significant capital outflows from Hong Kong, and a crisis in the property market. From the mid-1980s, the property market was on the way to recovery. This was due to a strong economy, balanced supply and demand, an improved political situation and high capital yields (Fu 2000, JLW 1995). In addition, the growth in finance-related services, such as banking, securities firms and insurance companies became significant in the 1980s. As a result, rental levels rose gradually and remained healthy amid continuing high demand in the second half of 1980s (Tse et al. 1999). Many overseas investors were also keen on the Hong Kong property market in that period, especially Japanese investors (FPD Savills 1992).

Demand for property generally remained higher than supply after 1980. With the vacancy rate below 5% during the period, average net prime office rentals increased

from HK$[4-3]2800 per square metre/per year to HK$ 5600 per square metre/per year. The unrest in China (the Tiananmen Square massacre) in 1988, the tension between China and Taiwan, the changeover of Chinese leadership and the impending handover of the territory in 1997 caused considerable political uncertainty. Jones Lang Wootton Research (1992) and DTZ Research (1993) suggested that the political uncertainty had impacted on the office market trend between 1990 and 1992, with rental levels dropping to HK$ 4400 per square metre/per year.

However, investors gradually regained confidence in Hong Kong's economy, attracted by high capital yields, the property boom in the region and the promise by China largely to retain the "*status quo*" after 1997. Due to the limited availability of land in Hong Kong and its location, and many investors and multinational companies setting up their businesses in the territory, rental levels rose gradually, with vacancy rates remaining steady at around 5% to 7%. Office rental levels reached their peak in 1994 and 1995 (HK$ 9000 per square metre/per year).

After the handover of sovereignty to China, the situation remained relatively stable. The unemployment rate dropped from 3.3% in 1996 to 2.4% in 1997 (ADB 2001). However, the local financial market was shaken by the currency falls across the region at the end of 1997. This affected the market severely the following year, and the property market began to experience a recession: drops in rental value and increases in unemployment rates and vacancy rates. Although the office sector was not as severely affected by the financial instability as others, such as the residential sector, investment activity remained weak, owing to the cautious outlook pervading the whole economy. Rental levels dropped by 15% in the prime office area and the vacancy rate was over 10% (JLL 1998 1999 2000, Knight Frank 1997, Delhaise 1998, Garran 1998).

During 1999, most Asian economies started to perform more robustly. GDP growth in Hong Kong achieved 3% that year, while the property market was on the way to recovery. Office rental levels rose and the vacancy rate began to fall gradually in the CBD area (ADB 2000, JLL 2000).

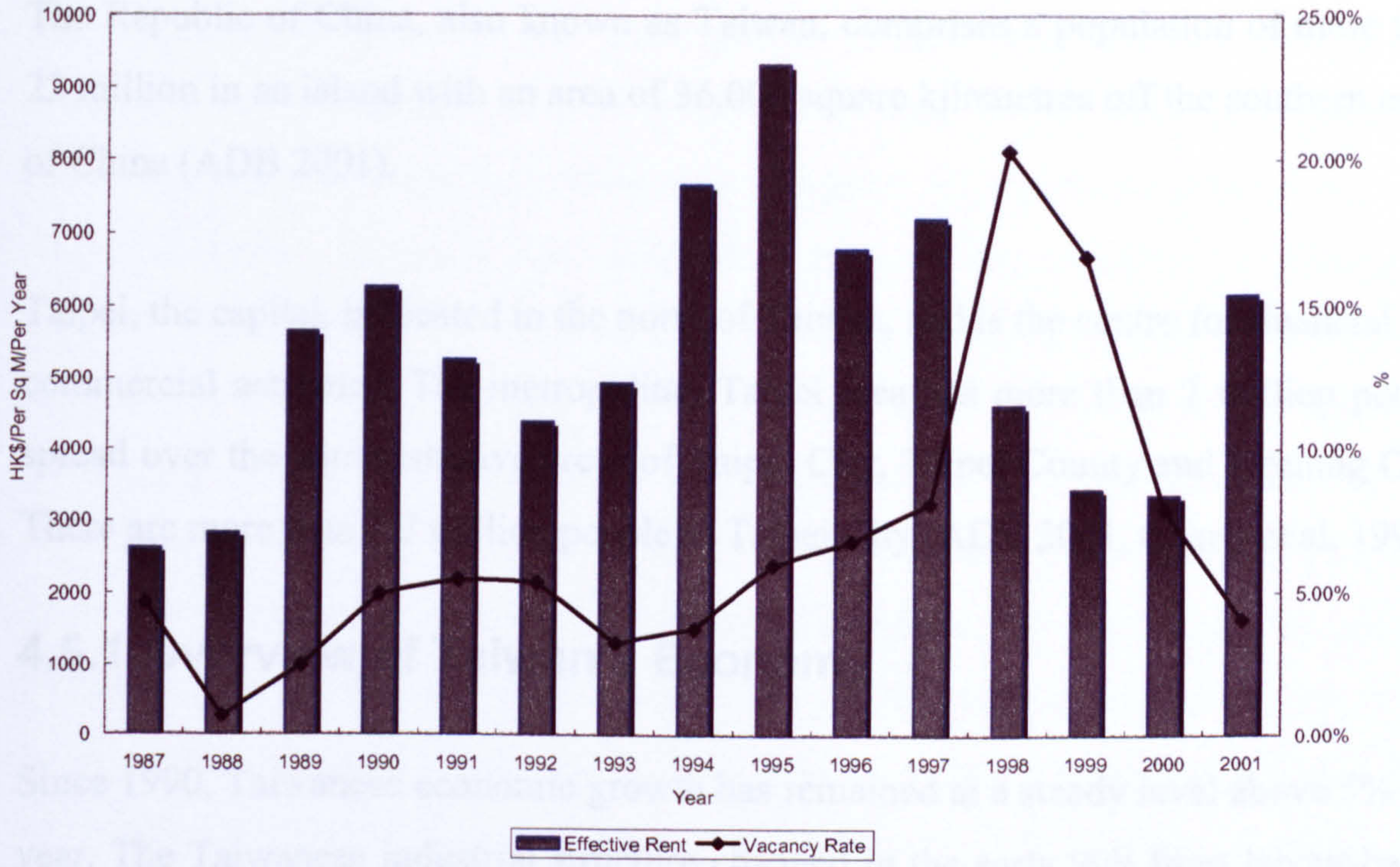
[4-3] Hong Kong Dollars

Persistently strong global demand and recovering domestic demand have been the key factors behind the increase in economic activity in Hong Kong in 2000. The office market was very active throughout 1999 and international investment funds remained very active, especially in the Central area. As underlying economic conditions improved rapidly, and China moved towards joining the World Trade Organisation (WTO), the impact was felt in the office market (Hastings et al. 2000). Vacancy rates dropped, while rents remained stable throughout the prime area. The IT and telecommunications sectors became the more important, as they planned further expansion to their operations in Hong Kong, to take advantage of the opening mainland market, which tightened the availability of office space (DTZ 2000, Jarvis 2003).

The office rental market remained very active in 2001, with rents rebounding strongly, the average prime rent being about 101% higher than the bottom of the market in 1998 and 1999 (JLL 2000). Low face rents and longer rent-free periods were the situation for the prime office markets in 2002 and 2003, owing to the global uncertainty such as war in Iraq and the attack of Severe Acute Respiratory Syndrome (SARS) in 2003.

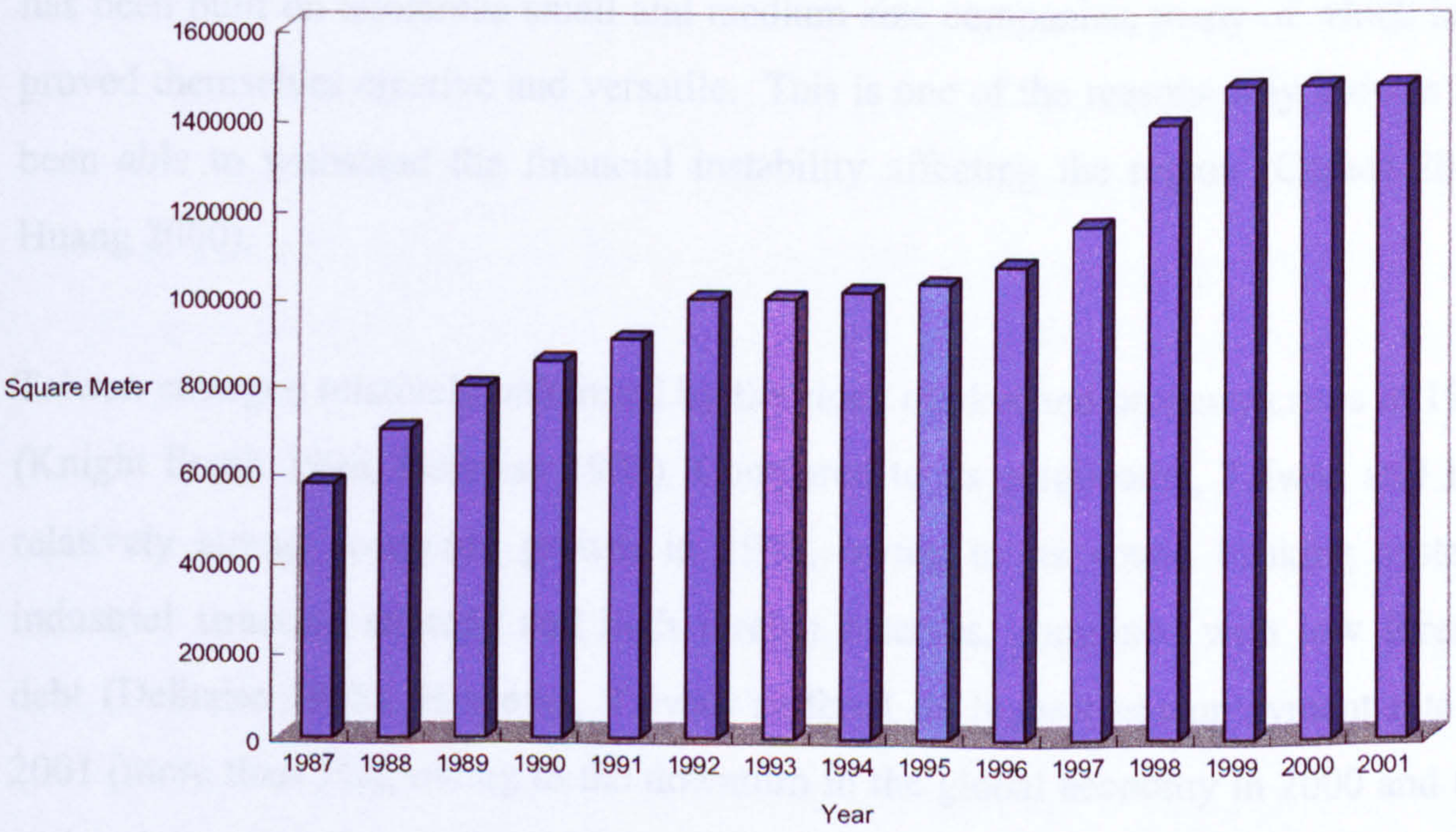
Office leases are typically for two or three years with the option to renew (Colliers Jardine 1997, JLL 2001). During periods of recession, lease terms become increasingly favourable for lessees. Rent free periods, normally 1 or 2 months in Hong Kong, have been known to reach 10 months for a 3-year contract (DTZ 2001).

Figure 4-6: Hong Kong Investment Grade Office Rental Market (Central)



Source: Jones Lang LaSalle

Figure 4-7: Hong Kong Investment Grade Office Total Stock



Source: Jones Lang LaSalle

4.6 Taiwan

The Republic of China, also known as Taiwan, comprises a population of more than 22 million in an island with an area of 36,000 square kilometres off the southern coast of China (ADB 2001).

Taipei, the capital, is located in the north of Taiwan, and is the centre for financial and commercial activities. The metropolitan Taipei area has more than 7 million people spread over the administrative areas of Taipei City, Taipei County and Keelung City. There are more than 2.7 million people in Taipei City (ADB 2001, Chang et al. 1999).

4.6.1 Overview of Taiwan's Economy

Since 1990, Taiwanese economic growth has remained at a steady level above 5% per year. The Taiwanese industrial structure changed in the early 90's from labour-based to high-tech-based industry, including the electronics sector. The change made the country the world's third largest producer of computer equipment and contributed to its high economic growth rate (Coface 2000). In addition, the Taiwanese industrial structure is more flexible than that of most other countries in this region. Its success has been built on numerous small and medium size companies, many of which have proved themselves creative and versatile. This is one of the reasons why Taiwan has been able to withstand the financial instability affecting the region (Coface 2000, Huang 2000).

Taiwan emerged relatively unharmed by the stock market and property crises in 1998 (Knight Frank 1998, Delhaise 1998). Compared to its neighbours, Taiwan still had relatively strong economic growth in 1998, owing to its sound banking system, industrial structure strategy and high foreign reserves, combined with low foreign debt (Delhaise 1998). However, Taiwan suffered its highest unemployment rate in 2001 (more than 5%), owing to the downturn in the global economy in 2000 and the regional recession. In addition, a local banking crisis also slowed down economic growth.

In the medium term, the country has all the required assets to undertake public development in order to maintain its economic growth. The upgrading of its industries and its competitiveness in the international market have certainly provided an important buttress against the financial crisis. Taiwan is losing its competitive advantage in labour-intensive industries to neighbouring countries such as Mainland Chin, Thailand, Malaysia and Indonesia. As a result, Taiwan is undergoing restructuring in terms of socio-economic and physical development in order to maintain economic prosperity (Chang et al. 1999). For example, a series of liberalising and restructuring measures, designed and implemented during the previous ten years, played an important role in strengthening the economic structure, especially the financial system. In addition, membership of WTO has also boosted confidence in Taiwan's economic prospects and stability. However, its future economic situation will depend much on its political relationship with mainland China and its internal political stability (Coface 2000, McLeod et al. 1998, Jarvis 2003).

4.6.2 Overview of the Office Market in Taipei

As Taipei is the centre of political life, trade, commerce, finance and communications in Taiwan, the demand for office space has become a very important issue in the city centre. The centre of the office market has moved from the western part of the city towards the east in the past 20 years. During the early 1970s, the office area was gathered in the western area (Chung-Shan E. Road) and around Taipei Main Station. Owing to the small amount of office space available in the western part of Taipei and increasing demand, the office area gradually moved toward the eastern part of Taipei in the early 1980s, making the eastern part of Taipei the main commercial centre. There are no clear CBD boundaries in Taipei office markets; however, there are five major office areas within the city: Dong-Hua S.N. Road, Ming-Shen E. W. Road (regarded as the Wall Street of Taipei), Hsin-Yi District (recently developed area: Taipei City Hall, Taipei City Council, World Trade Centre and Taipei 101), Nanking E.W Road and Taipei Main Station (old and busy commercial district). (Richard Ellis 1999).

Figure 4-8: Hsin-Yi District in Taipei (Prime Office Location)

The level of office rents in Taipei, as elsewhere, seems to be affected by the interaction of the macroeconomic environment and the property market situation. From 1956, the general economy started to grow gradually; while the industrial structure changed from agricultural industries to business and service industries. As a result, demand for office space increased. Rent for office space was around NTD[4-4] 800 per ping[4-5]/per month in the late 1970s, and the rental level has increased significantly since then (Chang et al. 1998).

In 1989, rents reached NTD 2,800 per ping/per month (with a vacancy rate of around 4%). Many construction companies began to build new office buildings in the Taipei area due to the expected demand. Yet the property market dropped dramatically in 1990 and there was an over-supply of office space. Owing to the nature of leasing contracts, the main effect on rental levels was delayed until 1991. The rental level

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[4-4] New Taiwanese Dollars

[4-5] 1 Ping = 3.3057 Square Metres

then was NTD 2,400 per ping/per month, and the vacancy rate increased to 19% (Chang et al. 1998, DTZ 1992).

The rental level continued to decrease until 1993, and stayed at NTD 2,000 per ping/per month, with the vacancy rate dropping to 17%. The supply of new office space decreased gradually from 1990. In 1995, the rental level grew to NTD 2,100 per ping/per month and the vacancy rate decreased to 12%. The main tenants for the Taipei office market are mainly from the finance and banking industries, as well as the computer, construction and chemical industries (Hsin-Yi Property Research 2000, CB Richard Ellis 1997).

In 1997, the stock market started to grow (from around 8000 at the end of 1997) and the government opened the communications industry to private companies. This had an upward effect on rents (Colliers Jardine 1998). In 1997, the rental level was NTD 2,500 per ping/per month, and the vacancy rate dropped from 8% in 1996 to 4% in 1997. According to the Colliers Jardine research (1999), the demand for office space was higher than supply, and the trend in the rental market continued to be upwards in the first half of 1998. Colliers Jardine suggested that this might result from the government's proposal of launching Taiwan as an "Asia-Pacific Trade and Transportation Centre" in 1995. Rents rose to NTD 2,580 per ping/per month in 1998. The financial crisis depressed activity in the Taiwanese economy in the second half of 1998, general economic performance weakened, and some industries moved to parts of Taipei County, such as Bei-To and Hsi-Chih area, which had the effect of lowering rents, but not for the prime office market. While office market rents in most Asian cities have generally decreased, Taipei has escaped the brunt of the recent financial crisis and prime office rents have remained unscathed (Chang et al. 1998, Chang et al. 1999, Colliers Jardine 1999, 2000, CB Richard Ellis 2000).

The office market performed reasonably well in 1999 and the average rental level increased slightly in the first half of the year, with the vacancy rate falling to 2% in 1999. A contributory factor was the fact that customers were keen to rent only high quality office buildings after the "921 earthquake", which occurred on the 21st September 1999. The rental level was over NTD 2,600 per ping/per month in 1999 and in some cases over NTD 4,000 per ping/per month. The office market

subsequently remained steady. Average overall rents in Taipei increased slightly to NTD 2800 per ping/per month and the vacancy rate was around 2.3% in the first half of 2000. The prime office rental value still remained strong in 2000. DTZ Research (2000) and CB Richard Ellis Research (2000) suggested that this might result from the limited supply of prime office stocks. The government offered some favourite measures, such as professional and financial aid and tax reductions in a bid to attract foreign enterprises to set up their business and development centres in Taipei, which increased demand for office space in the prime office location in Taipei. The rental value stayed at a similar level to the previous year which was NTD 2500 per ping/per month (DTZ 2002, 2003).

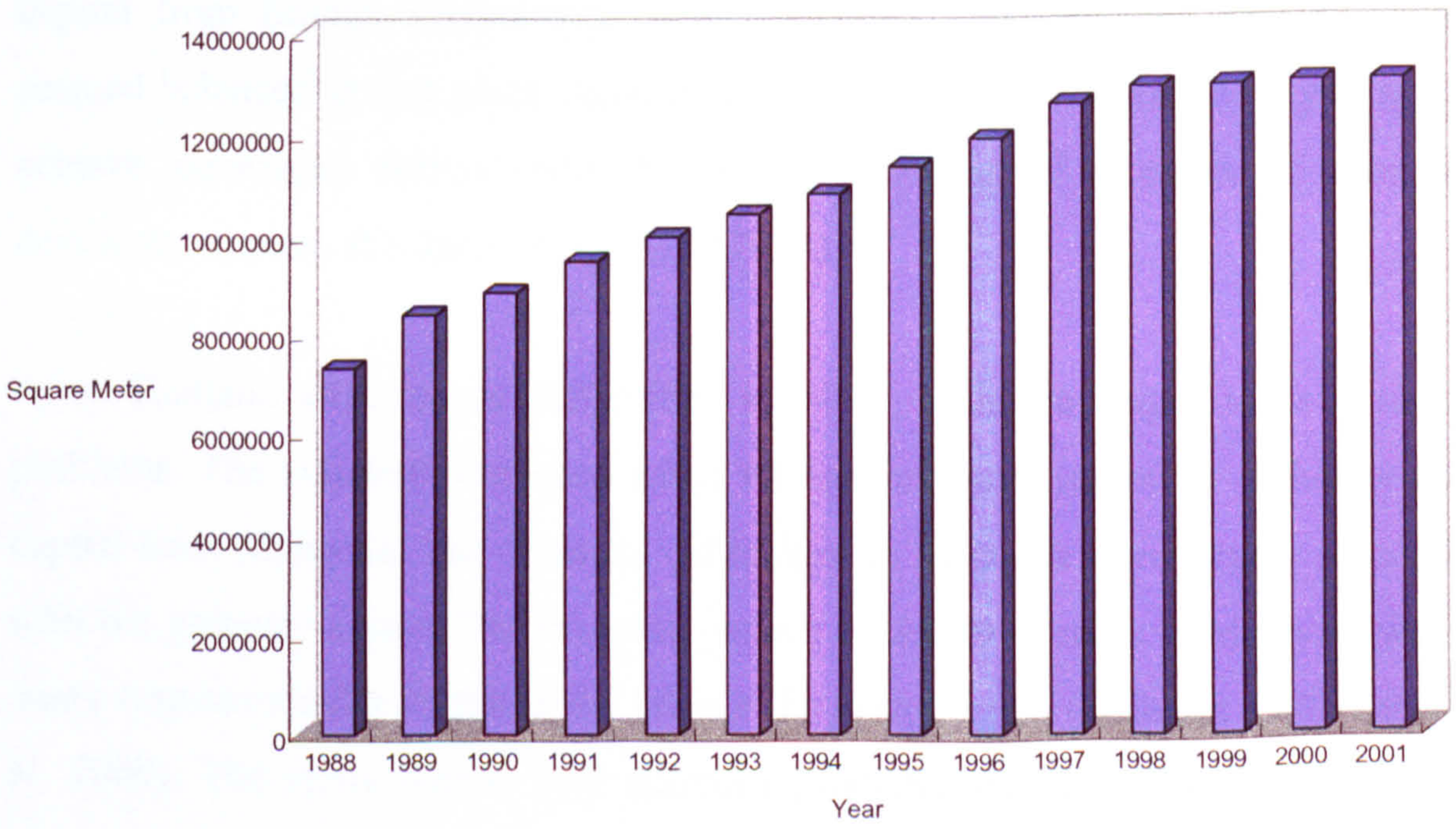
After reaching a peak in 1990 along with the general property market, the rental level for the office market has decreased steadily, but has stabilised since 2001 (unlike the housing market). Space, land and good quality office buildings are both very limited in the central area of Taipei. Many construction and financial companies have been keen to obtain land in the central area of the city, especially in the Hsin-Yin district, in order to provide more grade A office buildings. Moreover, with the office market dominated by the computer industry, other high-tech industries and also the financial and banking industries, prime office rental levels are still gradually increasing from 1998, which is a very different scenario from the housing and retail rental sectors (CBRE 1999, Colliers Jardine 2000).

Office leases are generally for an initial term of two to three years with an option for the tenant to renew for another one to three years, but a one-year rent review is also very common for Taipei (Colliers Jardine 1997, DTZ 2001). Where offered, rent-free periods are usually less than one month but could reach up to 2 months in times of recession. However, rent-free periods are not very common in Taipei; instead, tenants normally ask for a contribution towards the cost of interior decoration from the landlord (DTZ 2002).

Figure 4-9: Taipei Prime Office Rental Market

Source: CB Richard Ellis

Figure 4-10: Taipei Prime Office Total Stock



Source: CB Richard Ellis

4.7 Malaysia

The Federation of Malaysia is located at the southern end of the Malay Peninsula with a population of more than 20 million. Kuala Lumpur, the capital of Malaysia, is located in the Klang Valley on the western coast of Peninsula Malaysia. Kuala Lumpur is also the largest commercial, educational and political centre of Malaysia with around 1.4 million people (ADB 2001).

4.7.1 Overview of Malaysia's Economy

Malaysia was categorised as an Asian Tiger, owing to its high economic growth, resulting from its relatively stable political system, high levels of foreign investment, significant reductions in international trading barriers, and its efficient labour market. The Malaysian economy had experienced virtually full employment during the six years prior to 1997, and also a low inflation rate. Its economic growth prior to 1997 was above 8% p.a. on average. Inflation remained low prior to 1997 and prime lending rates remained competitive within the region (D'Arcy 1998, D'Arcy et al. 1999). The country's credit rating was ranked as A+, the same as Hong Kong's in 1997 (Standard and Poor's Rating, May 1997). It continued to enjoy a high inflow of capital from foreign investments. Non-performing loans and the banking system seemed balanced at that point. According to the government's plan, Malaysia was to achieve developed nation status by 2020 by means of a series of economic development plans (Delhaise 1998, ADB 2001).

After Thailand experienced difficulties in 1997, Malaysia began to face similar problems. The situation worsened when foreign investors started to withdraw their capital from Malaysia. The financial difficulties in Malaysia were largely associated with the property sector. The evolving pattern of the 1997 crisis in Malaysia was in many respects similar to that in the other NIEs in the region (Delhaise 1998, Omar et al. 2000). The crisis started with currency problems which rapidly translated into significant falls in financial markets and as 1998 progressed these in turn produced real economic effects (Omar et al. 2000, Seang 1999, Yong 2000). Prior to the crisis, the property market was seen to be the best long-term investment, owing to the easy availability of funds. As a consequence, there was a severe over-limited loan problem

in Malaysia. When the crisis began to hit Malaysia, the central bank announced a ceiling on lending for the property market and for the purchase of stocks. As a result, the stock market crashed, because Malaysia's stock market was heavily weighted toward property and financial shares. By the end of 1997, it had fallen around 44% and the currency was devalued by around 40% compared with 1993 levels (Padco et al. 2000, Seang 1999, Krugman 1999, D'Arcy et al. 1999, also see Table 7-7).

The Malaysian economy started to improve after 1999. The inflation rate dropped from a peak of 6.2% in 1998 to 3% in 1999 and 8.3% in 2000, which suggested signs of recovery (DTZ 2002). Despite overall strong economic growth in 2000, the growth slowed down in 2002, owing to the recessions in the USA and Japan, Malaysia's main trading partners (DTZ 2003). Overall, the economic situation is generally positive in Malaysia, owing to its stable political leadership, huge domestic markets and oil exports.

4.7.2 Overview of the Kuala Lumpur Office Market

Office premises in Kuala Lumpur are available in two central areas: the older traditional city centre and the new "Golden Triangle" office district to the North-East of the city, where the Kuala Lumpur City Centre (KLCC) twin towers complex (Petronas Twin Towers) is located (Colliers Jardine 1997). KLCC was developed in the 1990s in response to increased congestion and a lack of modern amenities in the old centre, which features older style and out-of date medium-size office buildings (JLL 2000).

Malaysia's economy has been characterised by high levels of property activity. The property market in Kuala Lumpur has depended on the economic development of the country. Like the other South-East Asian countries, Malaysia's rapid growth was highly attractive to foreign investors and foreign lenders. High levels of investment occurred in the commercial and residential property market in Malaysia, as in the other countries of the region (Yong 2000).

After independence in 1957, the economy grew steadily. However, due to the global recession in the 1970s, the economic sustainability of the country was affected and so was the property sector. In the 1970s, the government established a series of plans, its New Economic Policy, to restructure the economy, which had a positive influence on the property market. As a result, there was a boom in the property market in 1973. However, the whole economic situation and the property market faced a major recession in the mid-1970s, owing to the oil crisis and the resulting global recession (Yong 2000).

The property market started to show signs of recovery in the early 1980s. Local and international investors began once more to be attracted to Malaysia's property sector (Yong 2000, Delhaise 1998).

As a result, many development projects materialised in that period and office supply levels remained high until 1986. The vacancy rate was over 20% and the average net prime office rentals were around RM[4-6] 60 to 120 per square metre/ per year in 1985 and 1986. From late 1986, signs of recession emerged in the property market owing to tight liquidity and high vacancy rates (around 24%). As a consequence, rental levels fell to around RM 90 per square metre/ per year and the problem of oversupply existed in all property sectors (JLW 1990).

From the end of 1988, foreign investment capital flowed into the country, reaching another property boom. GDP growth remained above 8% and unemployment rates were below 5%. The vacancy rate dropped dramatically from over 20% in 1986 to 3% in 1992, and prime office rents increased to RM 552 per square metre/ per year. The property market kept growing, with lending to the property sector growing by 35% per year, which accounted for 33% of all lending in Malaysia (Yong 2000). Construction projects in the Malaysian property market seemed the best way to invest. However, concerns grew that an oversupply problem might be looming. Due to the increase of completed supply in 1992, the vacancy rate increased to 7% and prime office rents dropped to RM 500 per square metre/ per year. This continued until mid-1997 amid relatively stable economic growth. However, the pressure brought about by the depreciation of its currency and the slump in the stock market was obvious throughout 1997 (JLW 1998, DTZ 1998). Delhaise (1998) mentioned that the property market in Malaysia was very fragile, and that office and retail faced serious over-supply at the end of 1997. In fact, the property market started to decline in 1998, owing both to oversupply and the regional financial turmoil.

The property market moved into a downward cycle in 1998, as in Thailand and Indonesia. The supply of Kuala Lumpur office space increased by 9.3% (JLW 1998), but demand remained very weak owing to the poor financial situation and lack of

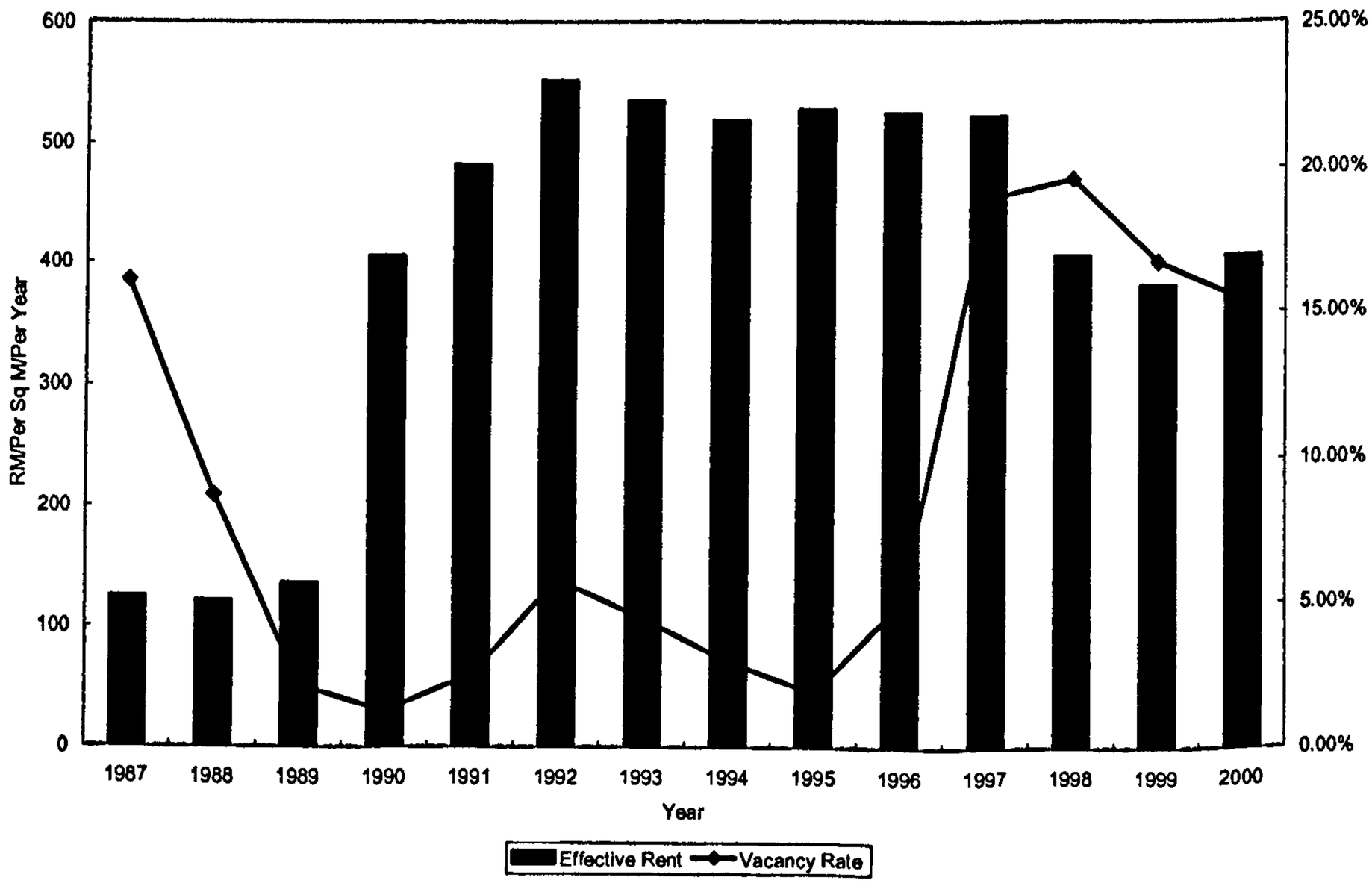
[4-6] Ringgit (Malaysian Currency)

confidence. Developers rescheduled their projects or cancelled them. The vacancy rate went up from 3.7% to 15.5% year on year. The situation in 1999 continued to be characterised by a high vacancy rate and low rental levels (JLL 2000).

In 2000 the economic situation improved, and GDP growth reached 5%. Rents in Kuala Lumpur's prime area held relatively steady during 2000 and office vacancy rates in the city generally continued to decline because of the limited new supply and strong take-up (JLL 2000, ADB 2001). Rents were generally stable in 2002, and prime office rents increased by around 5% to 10%, owing to the consolidation in the banking sector (DTZ 2002). The government announced a moratorium on the approval of new commercial buildings and, with the difficulties associated with bank funding, this is likely to have some impact on the supply side of the market in the next 5 years.

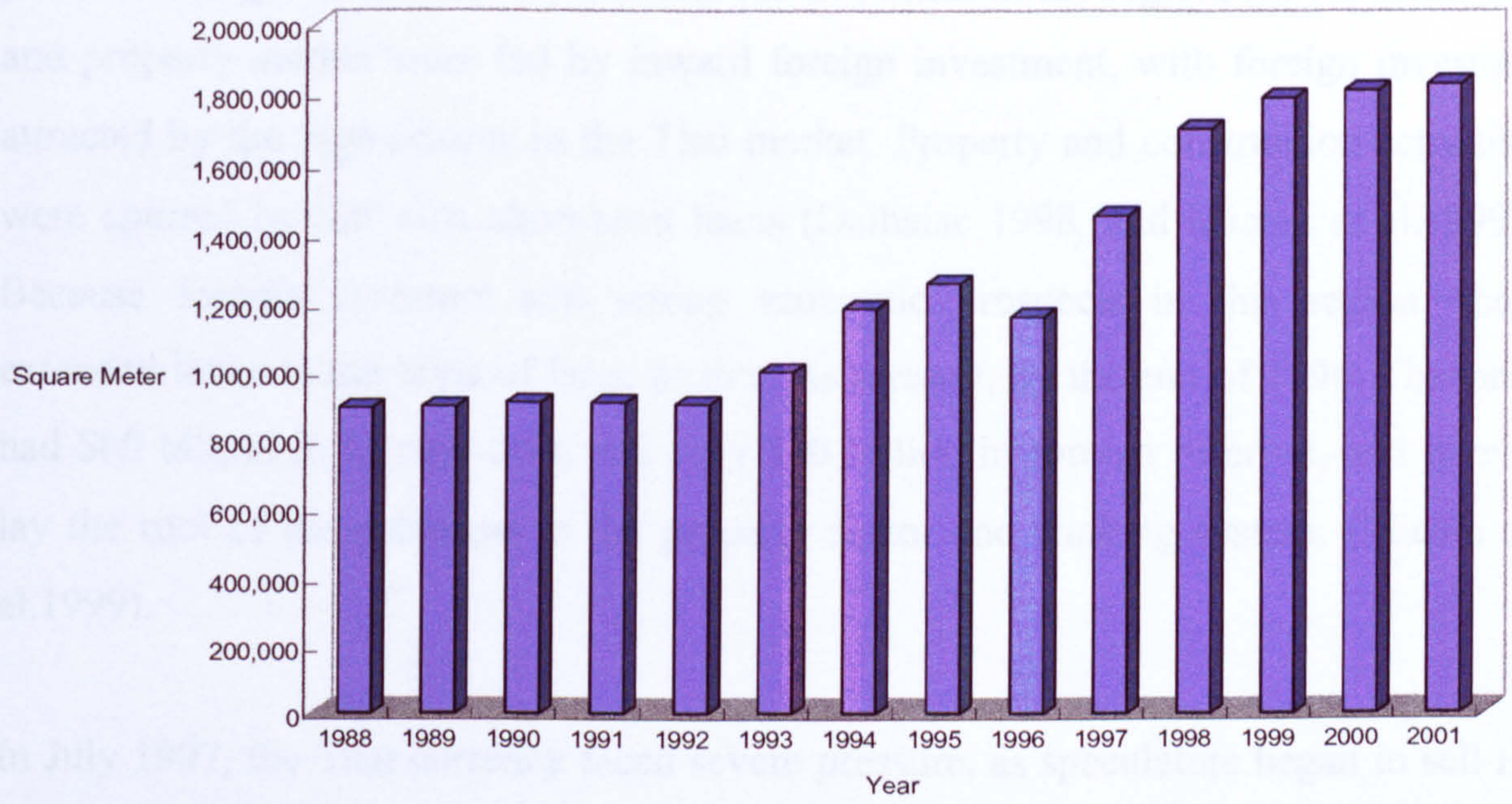
Office leases in Kuala Lumpur are usually structured for three-year terms. Rent-free periods are normally 2 months. However, during recessions, rent-free periods could reach 3 to 4 months (CB Richard Ellis 2001).

Figure 4-12: Kuala Lumpur Investment Grade Office Rental Market (Golden Triangle)



Source: Jones Lang LaSalle

Figure 4-13: Kuala Lumpur Investment Grade Office Total Stock (Golden Triangle)



Source: Jones Lang LaSalle

4.8 Thailand

Thailand is centrally located in South-East Asia with a population of more than 61 million. Bangkok, located on the Gulf of Thailand, is the capital, with more than 6 million people (Plumb 1999, ADB 2001). Bangkok is also the business centre of Thailand and serves as the country's transport, financial and political centre.

4.8.1 Overview of Thailand's Economy

Until the early 1960s, Thailand had an agriculture-based economy. In 1959, the National Economic and Social Development Board (NESDB) was established, to be responsible for the development and implementation of economic and social plans. In the 1970s, the goal moved towards expanding the industrialised sector, while the 1980s were characterised by major restructuring of economic and social priorities (Jarvis 2003, Pornchokchai 2002).

The Thai economy experienced a speculative boom in the late 1980s. Over almost a decade, the Thai economy became the fastest growing in the world, with a low inflation rate, stable exchange rate and high GDP growth, averaging 10% p.a. between

1988 and 1992 and around 8% p.a. from 1993 to 1995 (Pornchokchai 2002). The main components of the boom were increases in the levels of share and property prices and large amount of construction. As elsewhere in the region, the stock market and property market were fed by inward foreign investment, with foreign investors attracted by the high returns in the Thai market. Property and construction activities were spurred by low cost short-term loans (Delhaise 1998, and Michie et al.1999). Because foreign investors saw strong economic prospects in this region, they extended loans in the hope of large profits. As a result, by the end of 1996, Thailand had $60 billion in foreign debt, and only $40 billion in foreign reserves, and herein lay the root of the problems in the property sector and banking system. (Michie et al.1999).

In July 1997, the Thai currency faced severe pressure, as speculators began to sell it. The Thai government tried to remedy the situation by increasing interest rates. The stock market and property market then fell as the cost of borrowing rose. GDP growth was below 1% in 1997 and 1998, and the inflation rate rose to more than 10% during the period. As a result of these developments, some big financial and property companies started to face problems because they were highly leveraged by debt. Financial panic started in Thailand, and came to affect most of the countries in the region (Mera et al. 2000). The Baht[4-7] devalued by around 45% between 1993 and the end of 1997, while the stock market index dropped to less than one-third of its 1993 level (Delhaise 1998, Huang 2000, Kotler et al. 2000).

4.8.2 Overview of the Bangkok Office Market

The boundaries of the Bangkok office district are not clearly defined, but the CBD is generally accepted as being that area bordered by Surawong, Sathorn, Ratchdamri, Wireless and Ploenchit Roads (Colliers Jardine 1997, Knight Frank 1998). In addition to the CBD area, a secondary area is in the Sukhumvit, Asoke, New Petchburi areas and the corridor formed by Phaholyothin Road and Viphavadee-Rangsit and

[4-7] Baht (Thai Currency)

Ratchadapisek Roads (Knight Frank 1998). The stock of office space is only 30% concentrated in the CBD area in Bangkok (JLW 1998).

The first property boom in Thailand occurred in the second half of the 1980s. Many foreign investors were attracted to Thailand in an effort to reduce production costs. As a result, the demand for land and buildings increased. The property market in Thailand experienced high returns and low costs at the beginning of 1990, mainly because of the deregulation of its economic structure. Prior to 1992, the office market was defined by tight supply and a low vacancy rate. Prime office rents grew rapidly from Baht 2000 per square metre/per year in 1988 to over Baht 7000 per square metre/per year in 1991, while the vacancy rate for the CBD prime area stood at around 12% for prime office market (JLW 1992, DTZ 1992, Colliers Jardine 1997).

In 1993, the property market became sluggish, because of domestic political uncertainty, the Gulf crisis and a 50% increase in existing stock. Hence, rental levels fell and vacancy rates rose; also, capital values responded by falling. Investors concentrated on office buildings of the best quality and with the best location. Rental levels were around Baht 6000 per square metre/per year; with a 30% vacancy rate (JLW 1994, DTZ 1994).

From 1993 to 1996, economic conditions were very favourable, with a stable economic growth rate. As a result, property investment increased. The office sector benefited from strong interest coming from foreign companies eager to start and expand business in Thailand. Rental in the office market in Bangkok were stable. Prime office rental levels remained at Baht 5000 per square metre/per year and the vacancy rate was between 20% and 25%. The strong office demand growth in this period was mainly due to the expansion of the banking and finance sectors. During this period, Bangkok had a construction boom, with space increasing from just over 1.5 million square metres in early 1990s to a level of 6.5 million square metres in 1998 (JLW 1998). During this period, the demand for office space in Bangkok was also growing at between 500,000 square metres and 600,000 square metres per annum (Plumb 1999).

From 1996 onwards, the market began to slow down and eventually dropped significantly. This resulted in economic depression, currency depreciation, interest rate rises, cash liquidity problems, increased unemployment and high inflation levels (Delhaise 1998). The weak economic conditions caused a sharp drop in demand within the property sector (Plumb 1999, JLW 1998). At that time, oversupply from new projects was expected to continue for several years, especially in the office sector. Tight liquidity led to the widespread suspension of projects.

When the crisis developed, foreign investors withdrew their money, the currency depreciated, and interest rates rose. Furthermore, banks imposed strict procdures for approving mortgage applications, which deterred buyers. The office sector was directly affected by these factors. Many companies, including those in the finance and security sectors, were forced to move to low cost offices or to negotiate rental reductions. In 1997, when the crisis started, the prime rental level in the CBD prime area dropped to below Baht 3500 per square metre/per year and the vacancy rate was over 35% (compared with 20% in 1996). In 1998, the situation was even worse. The office rental market remained extremely bleak. The occupancy rate was even below 60% in some areas. Average monthly rents fell substantially - by between 10% and 20% during 1998.

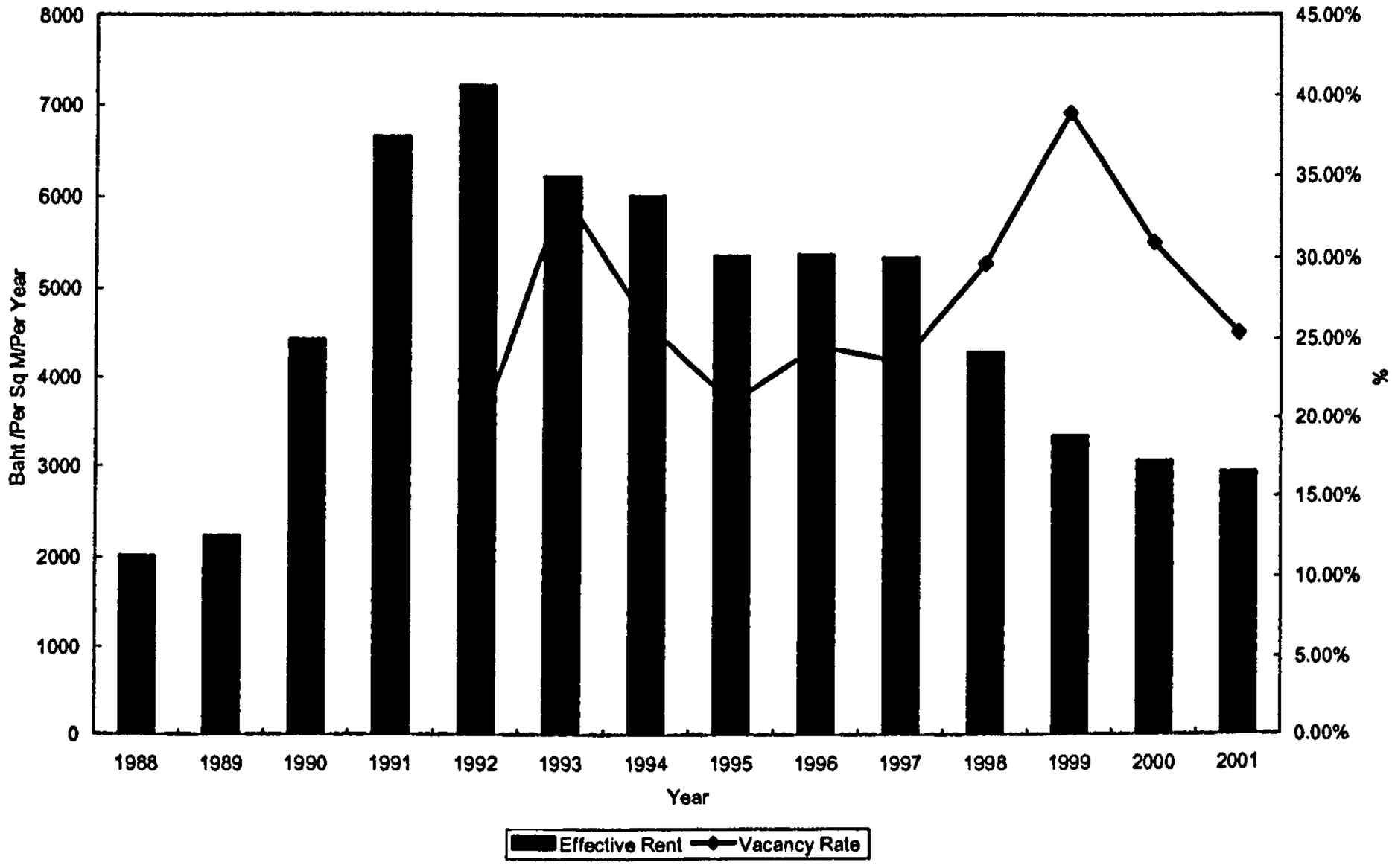
During 1999, the economy seemed on the way to recovery. Yet the property, stock and exchange markets remained weak. The average office rent in the CBD area was about Baht 3330 per square metre/per year.

In 2000, Thailand's economic growth was around 4% (-10.2% in 1998), much better than in the previous three years. The office rent level increased slightly to Baht 3600 per square metre/per year, but the vacancy rate remained stubbornly high, at 25%.

Rents were stable for the prime office market in 2000, and the demand within the office market improved. This was due to a lack of new completions since 1999 and a resulting fall in the vacancy level (JLL 2000). Demand increased from the expansion of the finance and insurance sectors, as well as IT-related companies, as in Hong Kong and Taiwan. The BTS Sky Train Mass Transit System has improved transportation and eased traffic congestion within the CBD area, which has helped to increase occupancy rates. In addition, overall economic conditions look good, and with low supply in the next few years, it should be possible for the market to absorb the existing vacant space. The continued recovery of the office market depends to a large extent on the sustainability of the upturn in Thailand's economy (DTZ 2001). With the CBD area, the average rents for Grade A office buildings rose 3% in 2002, owing to the growth in telecommunications, financial services and consulting companies (DTZ 2003).

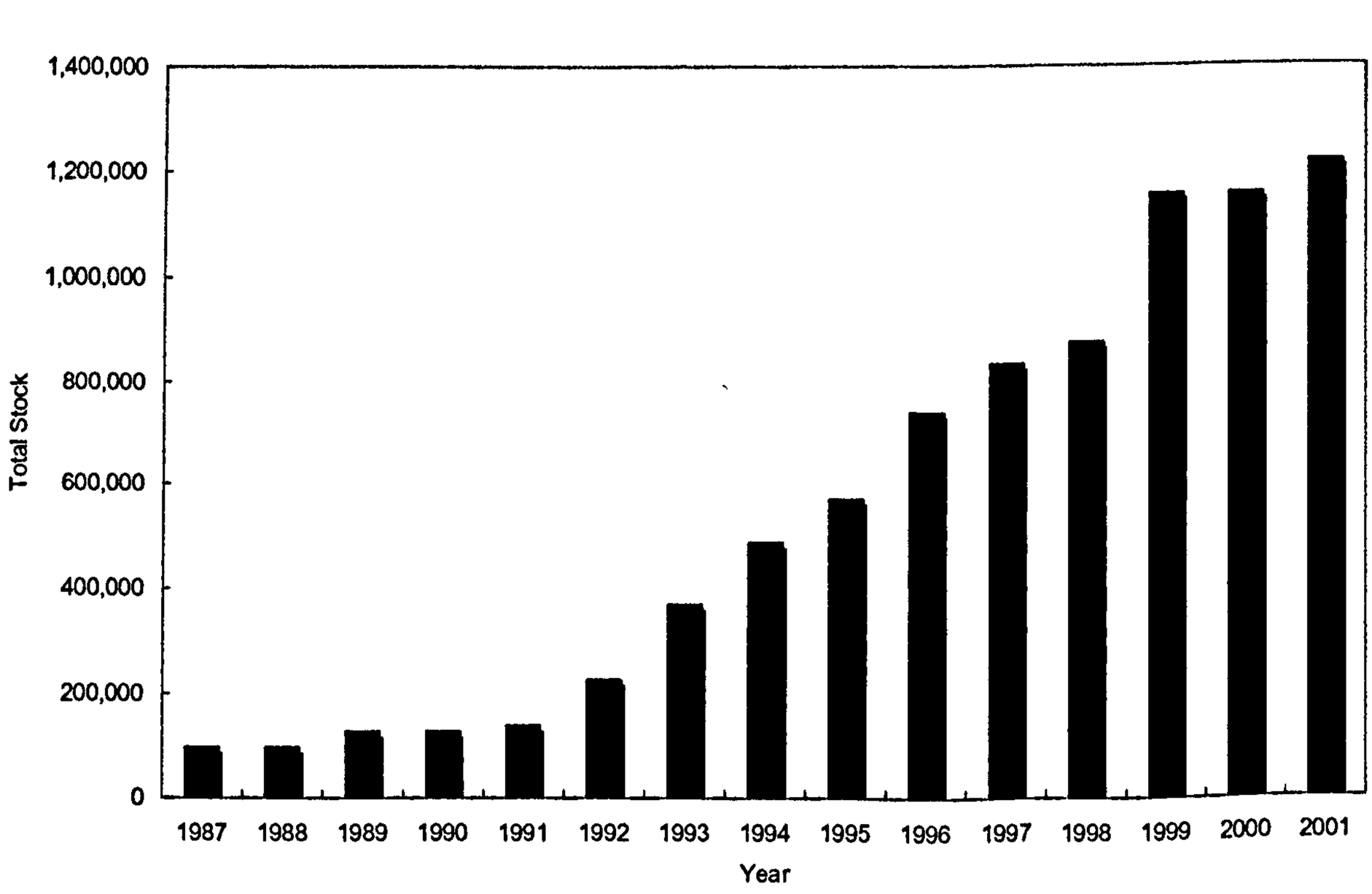
Office leases in Bangkok are structured for three-year terms and may also provide an option to renew for an additional two to three years (Colliers Jardine 1997, CB Richard Ellis 2001). Rent-free periods could range from 3 to 4 months to 10 to 12 months during recessions.

Figure 4-15: Bangkok Investment Grade Office Rental Market



Source: Jones Lang LaSalle

Figure 4-16: Bangkok Investment Grade Office Total Stock

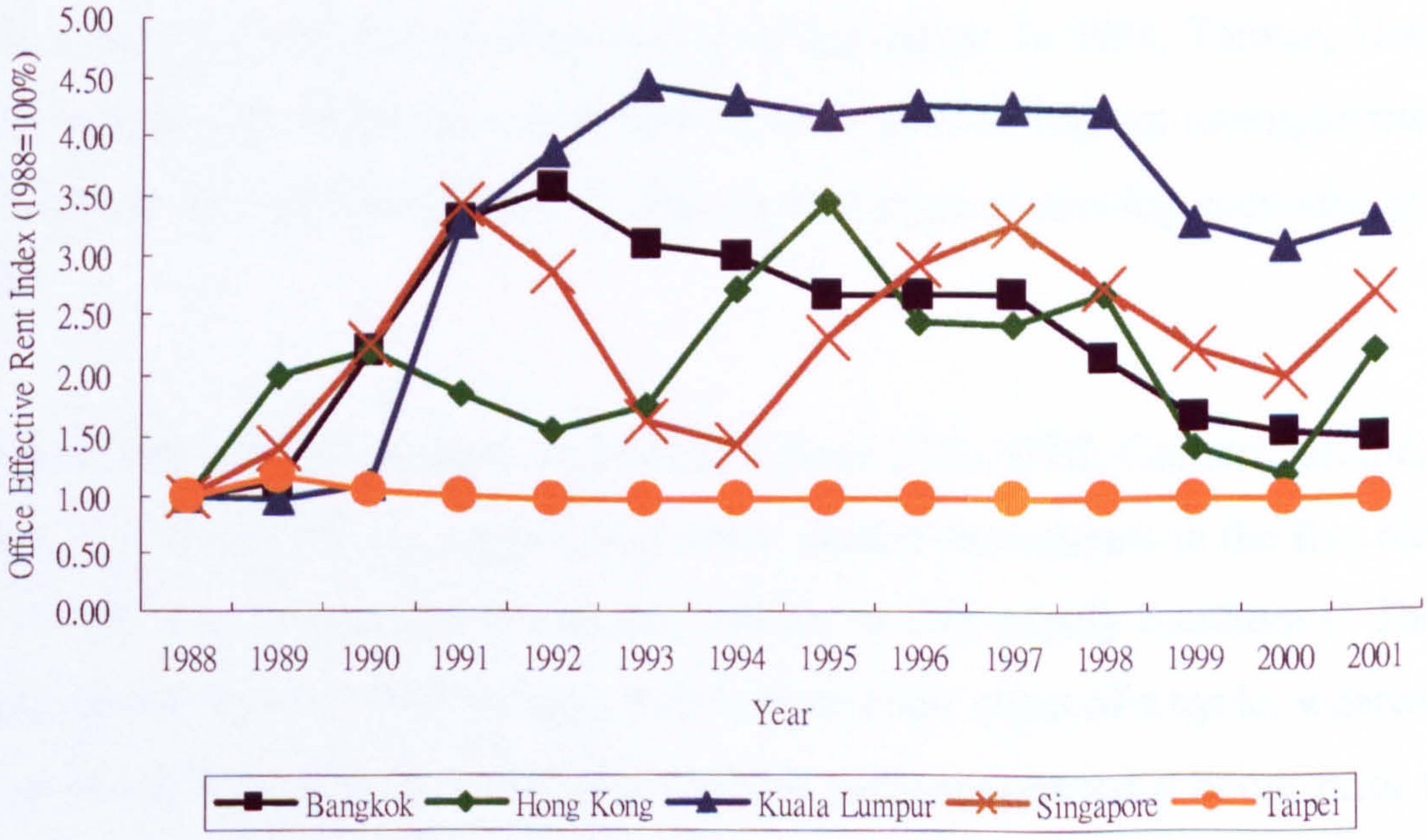


Source: Jones Lang LaSalle

4.9 Summary

To summarise this overview of office markets in the five cities: office rents achieved their peak in the first half of the 1990s, and economic expansion also occurred across the region. Foreign investment flowed into the region from the late 1980s, due to attractive rates of return and the low cost of lending. Office investment markets played an important role in the anticipated high rate of economic growth. Yet oversupply problems existed in many of the cities, particularly Bangkok and Kuala Lumpur, from the mid-1990s. Owing to over-supply, developers were unable to pay off their debts and over-lending was common in both cities. Then the property and stock markets crashed in 1997, and financial instability spread across the region. Office rental levels dropped in late 1997 and early 1998. However, prime office rents were not severely affected.

Figure 4-17: The Trend of Office Effective Rent



Source: Jones Lang LaSalle and CB Richard Ellis

Figure 4-17 shows that Singapore and Hong Kong are the only two markets with significant rental fluctuations (shows more volatility than other three cities). Rental growth peaked in 1991 and 1997 in Singapore and 1995 in Hong Kong. The movements of rental growth for Hong Kong and Singapore are moving in the opposite direction from 1990 to 1998. Moreover, there appears to be a two-year lag between the two cities. While office rental values increased in Hong Kong, the rental value in

Singapore dropped, and vice versa. This might be explained by the capital movements between those two cities, so when the investment environment was not good in one city, the capital flowed to the other instead, or this behaviour might simply be related to the business cycle (Lim 2000).

From this overview of office markets in the five cities, there are some common factors: the markets grew dramatically from the late 1980s till 1997; foreign investment accounted for a very large proportion of property investment; and governments supported development schemes in order to attract more investment. However, political stability played an important role in the region, especially in the Hong Kong and Taipei markets. These markets depend considerably on the political relationship with China.

Within the five cities, IT, and the finance and telecommunications sectors, are the most active players in the markets. These sectors clearly affect growth in this region. In 2001, global economic growth slowed down, especially in the USA and Japan. The USA is one of the major trading partners for the region. In 2001, Taiwan, Hong Kong and Singapore suffered the lowest GDP growth and the highest unemployment rates in a decade. Thailand and Malaysia also showed signs of slowing economic growth in 2001.

Previous reports from property consultancy firms (JLL, DTZ, Colliers Jardine, Knight Frank, CB Richard Ellis) suggest that office market movements in the five cities may be closely linked with their economic situations and supply conditions. The office rental movements in Hong Kong and Singapore show signs of a cycle, whereas office rental value for Bangkok and Kuala Lumpur just experienced a boom prior to 1997 and then significant dropped in property price, which could not show any sign of a cycle. China is another factor affecting regional office markets, as many institutional investors are keen to establish offices there, and as a result, demand for office space elsewhere in the region may reduce.

This chapter has reviewed the historical economic and office market trends and performances in five cities from 1988 to 2002. Chapter Five seeks to analyse the level

of the property maturity in the five cities in order to identify the level of development in terms of the market participants' perceptions.

Chapter 5 Assessment of Market Maturity in South-East Asia

5.1 Introduction

Chapter 2 (Literature Review) reviews the previous econometric modelling research on office studies. One of the major problems with econometric modelling is the assumption of an efficient market. Armitage et al. (1996) argue that the level of maturity and the level of efficiency are related. Therefore, it is essential to review the current maturity level in the five South-East Asian cities before undertaking econometric modelling.

Previous literature (Keogh et al. 1994, Seek 1996a, 1996b, Armitage 1995, 1996, Lim 2000) argued that mature markets should have the ability to accommodate a full range of use and investment objectives, with the provision of a sophisticated property profession with its associated institutions and networks, and up-dated infrastructure. They emphasised that this sort of analysis needs to be enhanced with a more detailed examination of prevailing legal and institutional structures in order to provide a sound explanation of market activities and evolution. As a consequence, both maturity level and institutional environment can influence office investment activities.

South-East Asian cities present an interesting array of property markets at various stages of evolution. Where each city is now and where it is heading is the result of a complex mix of underlying factors. The questionnaire (see Appendix Two) is designed to obtain objective views on characteristics of a mature market and a market evolution. This chapter presents an assessment of market maturity levels across the case study cities, to provide a better understanding of the overall market context.

The questionnaire contains sections covering market maturity and institutional environment assessments. This chapter presents analysis of the market maturity section. The institutional analysis will be presented in Chapter 7.

5.2 Respondents' Background Information

In order to discover the determinants of office investment activities in a broad institutional context, the questionnaire was designed to obtain fair and objective views

from property market researchers across the region. Researchers from property consultancy firms active in the five cities participated in the survey.

The questionnaire contained four main sections. Firstly, basic information was asked of the respondents, in order to identify their background and characteristics (Section 5-2). Secondly, they were asked to evaluate the level of the maturity of property market (Section 5-3), and finally to assess the institutional environment amongst the case study cities (see Chapter 7).

In order to measure opinions and the significance of various factors influencing office market movements, this survey uses a scaling technique, which contains descriptive terms based on a gradual progression in magnitude, with 1 representing very important and 5 representing least important. Using the mean score computed for each factor, the relative order of importance of each factor within its respective sample is determined.

Table 5-1: Total Response Rates

Number of Total Valid Responses: 50				
Singapore	**Hong Kong**	**Taipei**	**Kuala Lumpur**	**Bangkok**
10 (20%)	13 (26%)	9 (18%)	11 (22%)	7 (14%)
Response Rate in Each City				
10/17 (59%)	13/17 (76%)	9/10 (90%)	11/16 (69%)	7/9 (78%)

Of the total valid responses (50), 20% (10) were from Singapore, 26% (13) were from Hong Kong, 22% (11) were from Kuala Lumpur, 14% (7) were from Bangkok and 18% (9) were from Taipei. Among these replies, there were only 6 (12%) responses from locally based firms with the rest, 44 (88%), from multinational property consultant and investment firms (See Chapter 3.5, Table 3-9).

Table 5-2: The Number of Respondents who have researched the region

The Number of Total Valid Responses: 50									
Research in the past 10 Years in South-East Asia					**Have not done any research in the past 10 years**				
42 replies (84%)					8 replies (16%)				
SG	**H.K**	**K.L**	**BKK**	**TPE**	**SG**	**H.K**	**K.L**	**BKK**	**TPE**
8 (of 10): 80%	12 (of 13): 92%	9 (of 11): 81%	5 (of 7): 71%	8 (of 9): 89%	2 (of 10): 20%	1 (of 13): 8%	2 (of 11): 19%	2 (of 7): 29%	1 (of 9): 11%

Within those 50 valid replies, 42 of the respondents (84%) indicated that they had carried out research across the region in the past 10 years; 8 of the respondents (16%) said that they had not carried out any research in the region. The 42 respondents who answered that they had researched the region in the past 10 years consisted of 8 replies from Singapore, 12 from Hong Kong, 9 from Kuala Lumpur, 5 from Bangkok and 8 replies from Taipei. In this survey, Hong Kong has the highest rate of region-wide research (92%); whereas Bangkok has the lowest rate of region-wide research with only 71%. Although the sample of each city is different (from 9 to 13), the overall rate of research activities can still be shown by this survey. The respondents in Hong Kong, Taipei, Singapore and Kuala Lumpur have a higher rate of research activities within the industry (Table 5-2).

Table 5-3: Respondents' Knowledge of Cities

Total Respondents who had carried out Research in the past 10 Years: 42					
Singapore	**Hong Kong**	**Kuala Lumpur**	**Bangkok**	**Taipei**	**Others**
26	25	25	25	23	3

Amongst the 42 respondents who have done research in the past 10 years, there were 26 respondents who have carried out research in Singapore; 25 in Hong Kong, Kuala Lumpur and Bangkok, and 23 in Taipei. The number of those respondents reflects the fact that the percentage of the city knowledge of respondents is of almost equal weight in the five cities. This might reduce the risk of bias of the questionnaire analysis (Table 5-3).

Table 5-4: Mean Rankings of the Ease of Obtaining Property Investment Data

	Hong Kong	Singapore	Kuala Lumpur	Bangkok	Taipei
Mean	1.60	1.64	3.44	3.49	3.74
Rank	1	2	3	4	5

Question 4 of the survey asked about the ease of obtaining investment market data in the 5 cities, in order to gain an understanding of market information availability (Table 5-4). The results show that Hong Kong and Singapore lead, with only a 0.04 difference between them. Bangkok, Kuala Lumpur and Taipei are a second group where it tends to be more difficult to obtain information in markets. The responses also give an insight into the level of knowledge about the five cities. The number of "N/A" answers was low in Hong Kong and Singapore (7 and 6 respectively). In contrast, there were 16 "N/A" responses for Taipei. Both Table 5-3 and Table 5-4 show that Taipei is the least understood city in terms of research activity and the ease of obtaining property investment data. The data offer a basis for understanding of market maturity. The results are mostly the same as the Jones Lang LaSalle Transparency Index 2004, except Taipei comes before Bangkok in their survey.

5.3 Analysis of Property Market Maturity

In this section, respondents were asked to evaluate different elements of markets in order to assess the maturity of the subject property market. The main criteria for this question were developed by applying Keogh and D'Arcy's work (1994), which examined the maturity level of selected European prime office markets. In addition, the quality of property products, market information standardisation and availability, and presence of property intermediaries were also included, which has been also used by Lee (2001).

In order to provide a clearer picture of the similarities and differences between countries, each characteristic was assessed on a scale between 1 and 5, where 1 means "very well developed" or "very mature", and 5 means "very limited development" or "very immature". The overall result of the survey is listed in Table 5-5:

Table 5-5: Assessment of the Criteria for Market Maturity in the Five Cities

	Bangkok	H.K	K.L	Singapore	Taipei
Market Openness	3.4 (3)	1.5 (1)	3.4 (3)	1.6 (2)	3.5 (5)
Property Services Professional Level	2.8 (3)	1.4 (1)	2.8 (3)	1.6 (2)	3.1 (5)
Presence of Property Intermediaries	2.7 (3)	1.4 (1)	2.7 (3)	1.6 (2)	3.0 (5)
User and Investor Opportunity	2.7 (3)	1.8 (1)	3.2 (4)	1.8 (1)	3.2 (4)
Market Value	2.9 (4)	1.7 (1)	3.0 (5)	1.9 (2)	2.8 (3)
Flexibility	3.1 (3)	1.8 (1)	3.2 (4)	2.0 (2)	3.4 (5)
Market Information Standardisation	3.3 (4)	1.8 (1)	3.0 (3)	1.8 (1)	3.4 (5)
Market Information Availability	3.2 (4)	1.4 (1)	2.9 (3)	1.4 (1)	3.3 (5)
Development Stability	3.4 (5)	1.7 (2)	2.8 (4)	1.6 (1)	2.7 (3)
Quality of Property Products	2.8 (5)	1.5 (1)	2.5 (3)	1.5 (1)	2.5 (3)

Note: Parenthesis shows the rank for each city per criteria

The numbers of respondents in Hong Kong, Kuala Lumpur and Singapore were the highest, in most cases giving more than 25 responses for each characteristic in these cities. This suggests that the understanding of these three markets may be higher than in Taipei and Bangkok. In most aspects, Taipei is the lowest in terms of number of responses, which is consistent with the result in Table 5-4.

From the initial overview of Table 5-5, it is apparent that Singapore and Hong Kong have the lowest scores for each criterion, suggesting that those two markets were seen as the most developed and having the most mature elements compared to the other three cities. For Kuala Lumpur, Taipei and Bangkok, the average of each element is spread around 3, meaning the situation by each criterion is between mature and immature, suggesting they might be on the way towards becoming mature markets, especially in the elements of the presence of property intermediaries and development stability.

In the next section, each of the 10 different criteria will be evaluated. As a measure of each criterion, respondents were asked to evaluate the situation in the range of 1 (very mature) to 5 (very immature).

5.3.1 Market Openness

Table 5-6: Assessment of Market Maturity: Market Openness

Assessment of Market Maturity							
Factor: Market Openness							
Distribution of Responses (%) (1= high level of maturity, 5 = low level of maturity)							
	Very Mature (1)	**Mature (2)**	**Moderate (3)**	**Immature (4)**	**Very Immature (5)**	**Mean**	**S.D.**
Bangkok	4.0%	4.0%	48.0%	40.0%	4.0%	3.36	0.81
Hong Kong	62.1%	34.5%	0.0%	0.0%	3.4%	1.48	0.83
Kuala Lumpur	3.6%	10.7%	46.4%	25.0%	14.3%	3.35	0.99
Singapore	44.4%	55.6%	0.0%	0.0%	0.0%	1.56	0.51
Taipei	0.0%	13.0%	34.9%	39.1%	13.0%	3.52	0.90

Market openness can be measured by various dimensions: spatial, functional and sectoral (Keogh et al. 1994). Since the early 1990s, the attitude of various South-East Asian governments to business regulation and foreign investment has become more liberal (Colliers Jardine 1997, Jarvis 2003, Berry et al. 1999). The level of market openness relates to the level of property investment and the level of maturity directly (Keogh et al. 1994, Armitage 1996). Once the markets are open, opportunities are created and investors are encouraged to invest in the market. This stimulates the level of economic growth and provides a sound environment for the property market. A very open market should become as open as a local market for national and international participants (Keogh et al. 1994).

Hong Kong (96.6%) and Singapore (100%) were considered to be the most mature markets (mean 1.48 and 1.56 respectively). The responses in Singapore showed a high degree of agreement in the openness of its market (S.D. 0.51). Kuala Lumpur, Bangkok and Taipei were all considered fair or immature (mean 3.35, 3.36 and 3.52 respectively). Unexpectedly, 8% of respondents considered openness in Bangkok as at mature market level. A majority of respondents (52.1%) considered Taipei immature in this aspect. The standard deviations (S.D.) are low in all cases, indicating that most respondents shared similar views.

Table 5-6 also shows that the difference of mean between Hong Kong and Singapore is 0.07 (P>0.05; there are no significant differences between Hong Kong and Singapore, also see Appendix Three), and the gap between Kuala Lumpur and Bangkok is just 0.01 (P>0.05; there are no significant differences between Kuala Lumpur and Bangkok, also see Appendix Three). This indicates that Hong Kong and Singapore's levels of market openness are seen as very similar, and also Kuala Lumpur and Bangkok are seen to be the same in the second level. Taipei appears as a relatively closed market compared to the other four cities and is seen as immature in this respect. From the differences of the mean of market openness, the results fall into two groups, with Hong Kong and Singapore in the lead and towards the level of mature markets; Kuala Lumpur, Bangkok and Taipei are in the second group, considered to be below a moderate level of maturity.

Hong Kong and Singapore top the list of the freest economies according to the seventh annual Economic Freedom of the World Report (also see Section 7.3.4). Hong Kong has been in first place in each report since the 1980s (Gwartney et al. 2003).

Table 5-7: Rating and Ranking for Economic Freedom in Hong Kong

Year	1980	1985	1995	2000	2001
Rating	8.6 (1)	8.4 (1)	8.2 (1)	8.8 (1)	8.6 (1)

Source: Gwartney et al. 2003 (Parameters shows the ranking)

Table 5-8: Rating and Ranking for Economic Freedom in Singapore

Year	1990	1995	2000	2001
Rating	8.1 (2)	8.8 (2)	8.6 (2)	8.5 (2)

Source: Gwartney et al. 2003 (Parameters shows the ranking)

Hong Kong and Singapore are seen as the most open markets. Walker et al. (1991) also mention that Hong Kong and Singapore are both considered to be amonst the most open economies in the world. This could be explained by reason of the fact that most sectors are open to foreign investment in those cities, including banking, press, media and public utilities (also see Section 7.3.6).

Traditionally, Hong Kong and Singapore are competitors in South-East Asia. The two cities have similar patterns in their growth and characteristics (Tse 1997, Walker et al. 1991). Hong Kong has been recognised as one of the most unrestricted trading areas in the world (Gwartney et al. 2003, Walker et al. 1990, Walker et al. 1991), and Singapore is also very free but has stricter regulation (Jarvis 2003). This can be confirmed by the results of the survey. One respondent from an international investment firm in Singapore said "*there are not any other cities which are more free than Hong Kong. Singapore has freedom but there is still some certain level of intervention from the government, which might be a barrier to investment activities*". Another researcher in an international consultancy firm in Hong Kong also said "*Hong Kong is the freest market in the world in terms of economic, financial and investment activities. Although investors are keen on Chinese markets such as Shanghai and Juang-Zhao, Hong Kong still offers the best facilities in terms of human resource, economic freedom and legal framework, which are superior to China and most of the countries in the region*". This point of view was widely supported by most other researchers who are based in Hong Kong. There is only one researcher (3.4%) who described Hong Kong as very immature in this aspect and this researcher emphasised that it was based on his personal experiences in the past, which might be biased. Tse (1997) mentioned that investment in Hong Kong property becomes more complex as the property market is open to overseas investors; however, it is also more volatile than Britain and USA, which also shows a certain level of maturity.

In Kuala Lumpur, Bangkok and Taipei, there are constraints on property asset holdings for foreign institutions which make the market difficult to operate in (Armitage 1996, Lim 2000, JLL 2002, Lim et al. 2002, Jarvis 2003, JLL 2003). Most aspects of business are open to foreign investment in Malaysia and Thailand; however, local equity participation is required. In Thailand, property ownership by foreigners is restricted, as is repatriation of profits. In Malaysia, the restriction on foreign ownership is the same. Foreign investors have to form a joint-venture in order to obtain a licence to set up business in Malaysia. Before a foreign investor can establish a local branch there, an approval process must be gone through (Colliers Jardine 1997, JLL 2002). The restriction of foreign investment activities will be mentioned in detail in Section 7.3.6. In Taipei, foreign participation in business has to be approved too. However, the government is gradually removing some business ownership restrictions

(JLL 2002). There are few restrictions on foreign ownership of property and land. One respondent in a local firm said "*the government has relaxed the restrictions on property ownership and stock market activities for foreign investments in the past few years owing to the global investment activities demand and the membership of WTO. The investment restriction is certainly far more relaxed now than in the late 1980s. However, the recent economic slowdown is caused by the global recession and unstable political and economic atmosphere in the island. If Taipei wants to be an international city or "Asia-Pacific Trade and Transportation Centre" as the government's proposal, the market needs to open more for foreign investors*".

5.3.2 Quality of Property Professional Services

Table 5-9: Assessment of Market Maturity: Quality of Property Professional Services

Assessment of Market Maturity							
Factor: Property Professional Level							
Distribution of Responses (%) (1= high level of maturity, 5 = low level of maturity)							
	Very Mature (1)	**Mature (2)**	**Moderate (3)**	**Immature (4)**	**Very Immature (5)**	**Mean**	**S.D.**
Bangkok	8.7%	30.4%	34.8%	26.1%	0.0%	2.78	0.95
Hong Kong	63.0%	29.6%	7.4%	0.0%	0.0%	1.44	0.64
K.L	12.0%	28.0%	32.0%	24.0%	4.0%	2.80	1.08
Singapore	48.0%	44.0%	8.0%	0.0%	0.0%	1.60	0.65
Taipei	4.8%	14.2%	47.6%	28.6%	4.8%	3.14	0.91

"Property professional level" means the perception of the level of market information, transaction and development (Armitage 1996). When this is high, more detailed and in-depth analysis would be available in the industry. This may give foreign investors more confidence to invest in the local market.

Hong Kong (92.6%) and Singapore (92.00%) were deemed to be mature markets in terms of quality of property professional services (mean 1.44 and 1.60 respectively). Bangkok and Kuala Lumpur are considered to be fair in this aspect (mean 2.78 and 2.80 respectively). The quality of property professional services in Taipei is considered to be below moderate status (mean 3.14). Standard deviations are

relatively low for most cities, showing that respondents shared similar views on this aspect except, in the case of Kuala Lumpur (S.D. 1.08).

Table 5-9 also shows the difference between Hong Kong and Singapore as 0.16 (P>0.05; there are no significant differences between two cities; also see Appendix Four); Hong Kong and Bangkok as 1.34 (P<0.05; there are significant differences between Hong Kong and Bangkok, also see Appendix Four for ANOVA results); Hong Kong and Taipei as 1.70 (P<0.05; There is a significant differences between Hong Kong and Taipei, also see Appendix Four) and Kuala Lumpur and Taipei as 0.34 (P>0.05; There are no significant differences between Kula Lumpur and Taipei, also see Appendix Four). It is apparent that the five cities fall into three groups. The gaps between the groups are smaller than those relating to market openness. This might be explained by the spread of international property consultant firms across the region and the demand from overseas investors. Taipei is seen to be behind the rest of the cities in this respect. A respondent there said "*although some international property companies have small offices in Taipei, transactions tend to involve local consultancies rather than the international firms*."

The quality of property professional services in Hong Kong and Singapore are seen as the highest in the region, tending towards a well-developed level. This might be expected, given their sound financial structure, regulation, active foreign investment activities and demand, and well-educated labour. The property professions were set up during the colonial period and follow the established British system. However, Malaysia was also a British colony, and yet the financial structure, activities, and labour quality there are seen as less mature and open than in Hong Kong and Singapore (Walker et al. 1991, Yu et al. 1997). One researcher in an international property consultant firm in Hong Kong mentioned that "*the property professional qualifications in Hong Kong and Singapore are closely linked with British System, such as R.I.C.S. The standard and the quality of the services could be counted as very mature in both cities*". Most respondents also mentioned and supported this point of view (also see Section 7-3-13).

Respondents explained that Kuala Lumpur and Bangkok's mixed results can be interpreted by different views of markets and different participants. One researcher in

Bangkok mentioned that "*Bangkok is a mature market for local participants, as they can obtain local information easily; however, it is extremely immature in terms of international standard, owing to lack of well-trained property professionals*". Similar views were mentioned by a number of respondents, especially in relation to the Kuala Lumpur, Bangkok and Taipei markets. International property consultant firms aim to have a similar quality of property professional level across all their offices in the world. However, those respondents from international consultant firms emphasised that the general level of property professionalism is lower in these three cities than in the US and Western Europe. Those elements include property data, information availability, and the ability to carry out detailed market research. One respondent in Singapore said "*the property profession is inadequate in Kuala Lumpur, Bangkok and Taipei. Many western investors would seek for further detailed analysis and information for their investment decision; especially the investors from the US. Those investors would try to seek for further research reports which have been done in Singapore or Hong Kong. Some of those investors would rather use Singapore or Hong Kong branches to carry out the research for them in those cities*". Some respondents pointed out that the quality of property professionals has improved recently due to demands from foreign investors. Armitage (1995) also mentioned that the *Valuers' Association of Thailand* is co-operating to expand the educational and professional base to a more international standard, which has slightly improved its professional level (also see section 7-3-13).

The property professional level for Malaysia has well-developed institutions and networks. As mentioned earlier, Malaysia was a British colony and still follows a similar structure of property operation and professions to the U.K. These factors have contributed to the availability and quality of good information on the property market and monitoring of the quality of property professional services (Keogh et al. 1999). One respondent in Kuala Lumpur said "*the education system and property professional level practice in Malaysia are fairly close to the British system. Some Malaysian academics and firms are keen to participate in regional research activities, for example conferences. Therefore, the property professional level in Kuala Lumpur remains a certain standard. Those researchers also have retained close contacts with other researchers such as in Australia, U.K., U.S.A and Singapore. Those activities will continue to increase the general professional level in Malaysia*". Property

professional standards in Malaysia will be mentioned and analysed further in Section 7-3-13.

The view on professional standards in Taipei tends to be that they are poor. This might be explained by the fact that there is a lack of property professional regulations, qualifications and property professional institutions. There was no regulation of chartered surveyors until 2001. Before this, the only recognised licence for property regulation was the *Property Registered Certificates*. There is little research activity in the Taipei property market and this might also be due to the past lack of any "property professional course" in Taiwan. The situation has improved recently, with the introduction of a licence for chartered surveyors and membership of the WTO. In addition, more polytechnics have begun to offer property or land management courses. The respondents stressed that the situation should continue to get better in the next few years as *Chartered Surveyor Licences* (also known as Valuation Certificate) become widely used. One researcher in an international firm in Hong Kong points out that "*it is hard to see any research activities or output about property market analysis in Taipei which has been published in an international journal*". This situation can be explained by the generally low level of the property profession and lack of research activity in Taiwan, creating problems of understanding for some potential foreign investors. Interestingly, one respondent in Singapore also said "*according to personal experience, Taipei is mature in this respect. The Taiwanese government had organised an annual land management seminar for both academic and market participants in the past. There are many researchers from the region and Europe participating in this seminar. Through this seminar and network, the general professional level is very high especially within some academic institutions*".

5.3.3 Presence of Property Intermediaries

Table 5-10: Assessment of Market Maturity: Presence of Property Intermediaries

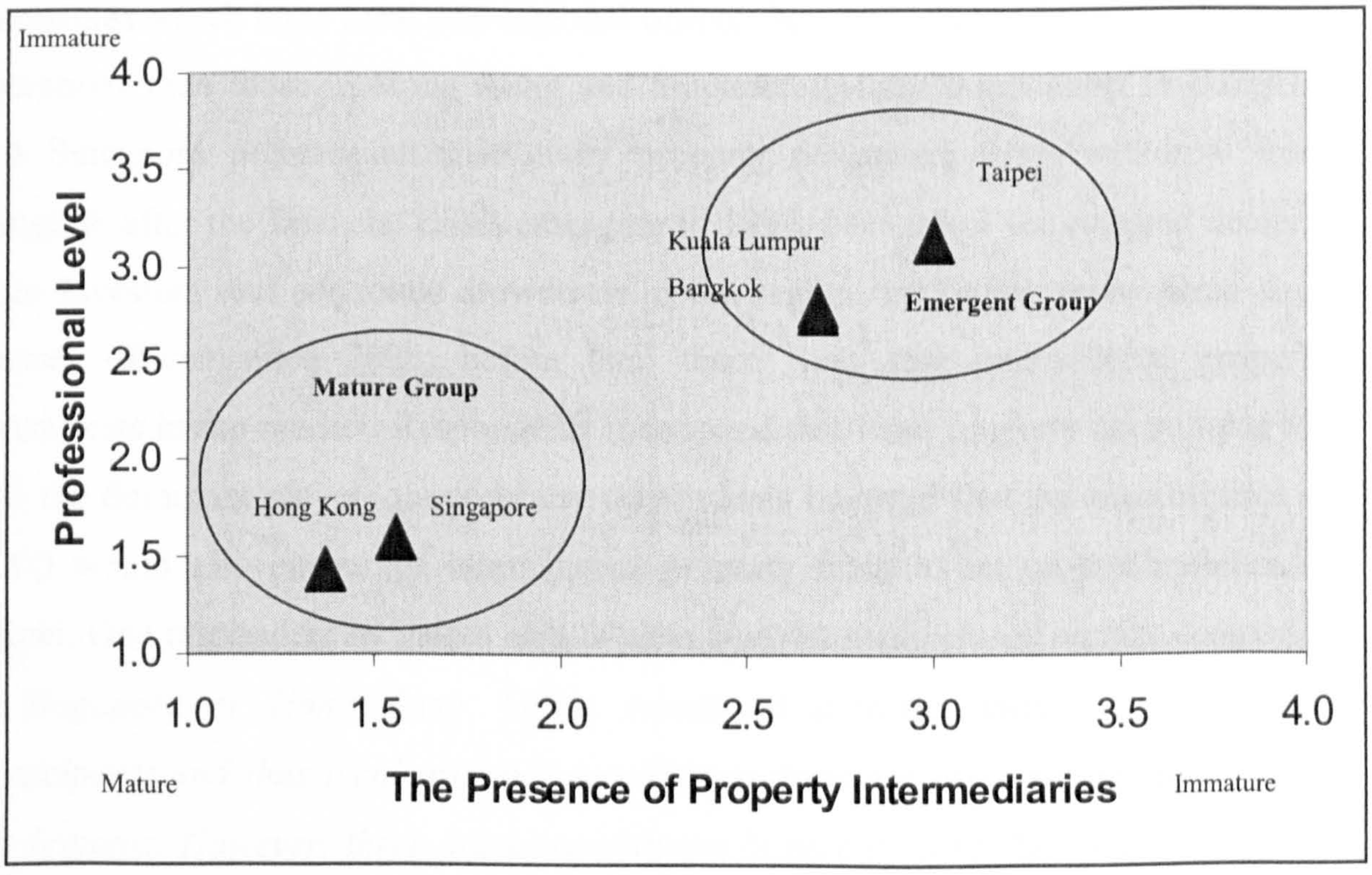
Assessment of Market Maturity							
Factor: Presence of Property Intermediaries							
Distribution of Responses (%) (1= high level of maturity, 5 = low level of maturity)							
	Very Mature (1)	**Mature (2)**	**Moderate (3)**	**Immature (4)**	**Very Immature (5)**	**Mean**	**S.D.**
Bangkok	8.3%	33.3%	41.7%	16.7%	0.0%	2.67	0.87
Hong Kong	66.7%	29.6%	3.7%	0.0%	0.0%	1.37	0.56
Kuala Lumpur	7.7%	30.8%	50.0%	7.7%	3.8%	2.69	0.88
Singapore	56.0%	36.0%	4.0%	4.0%	0.0%	1.56	0.77
Taipei	0.0%	27.3%	50.0%	18.2%	4.5%	3.00	0.82

Hong Kong (96.30%) and Singapore (92.00%) were regarded as mature in this aspect (mean 1.37 and 1.56). Most respondents believed Bangkok (41.7%), Kuala Lumpur (50%) and Taipei (50%) to be above the moderate rank (mean 2.67, 2.69 and 3 respectively). Standard deviations are mostly low, especially in the case of Hong Kong, indicating high degrees of agreement amongst respondents.

Table 5-10 shows that there are three main groups in this category. Hong Kong and Singapore are in the lead with 0.19 differences in mean ($P>0.05$; There are no significant differences between Hong Kong and Singapore, also see Appendix Five for ANOVA analysis), both inclining towards being very mature markets. Bangkok and Kuala Lumpur are in the second group. Taipei is again at the bottom. The differences of mean in this aspect between those three groups are small (1.11 between Singapore and Bangkok: $P<0.05$; there are significant differences between two cities also see Appendix Five; 0.31 between Kuala Lumpur and Taipei: $P>0.05$; there are no significant differences between two cities also see Appendix Five). It is apparent that the results for this question are very similar to the results for the property professional level question, with the same ranking order and similar differences in different groups. The results of property professional level (Table 5-9) and the level of presence of property intermediaries (Table 5-10) suggest a possible link, so that the greater the presence of property intermediaries, the higher the property professional level (Figure

5-1) (also see Appendix 6: cluster analysis). A respondent in Singapore said "*Hong Kong and Singapore have the highest professional level among the five cities. This can be partially attributed by the high educated level of the labour force and the high level of the presence of the property consultant firms*".

Figure 5-1: Correlation between Property Professional Level and the Presence of Property Intermediaries



The level of presence of property intermediaries in the five cities ranges between fair and well-developed. Singapore and Hong Kong are traditional world-class financial trading centres, therefore there are many international financial and property consultants and investment firms with offices or Asia headquarters in Hong Kong or Singapore (Walker et al. 1991, Jarvis 2003). This would lead to the expectation that the amount, size and quality of the property intermediaries are highest in Hong Kong and Singapore, and the perceptions of the respondents support this view. There are around 60 real estate consultancy firms operating and most of the leading international real estate services firms have established a presence in Singapore. Those firms have contributed to the high level of research activities and market analysis. Moreover, the presence of the firms has enhanced information availability and potential for market efficiency (Keogh et al. 1999). One major international firm researcher in Hong Kong said "*every major property consultancy firm has its presences in Hong Kong and Singapore, because those two cities are the major*

service centres for foreign investment activities. However, the presences of the international property firms are less in Kuala Lumpur, Taipei and Bangkok. This might be explained by the local market size and the level of property investment activities".

In Bangkok and Kuala Lumpur, there are many leading property consultant companies which have local and regional offices, but they tend to have smaller scale operations than those in Hong Kong and Singapore. Many respondents in Bangkok and Singapore pointed out that many property consultant firms withdrew from Bangkok after the financial crisis emerging in 1997, because of the reduced demand from investors and economic slowdown in the region. In Taipei, more firms have opened offices since 2000; before then there were few international property consultants in the market. Respondents mentioned that local property consultants are still the dominant players there. Many respondents believed that the membership of WTO would also encourage international property firms to set up the branches in Taipei. One respondent in Taipei said "*Taipei is a relatively closed market compared to Singapore or Hong Kong. Office investment activities mainly involve local participants and thus local property consultancy firms are preferred for those local participants. However, there are some changes in recent years. There are more and more international consultancy firms which have established their branches in Taipei such as JLL, CBRE, DTZ and Colliers Jardine. Most international investors would prefer to seek advice through those international firms rather than the local firms*".

5.3.4 User and Investor Opportunities

Table 5-11: Assessment of Market Maturity: User and Investor Opportunities

Assessment of Market Maturity							
Factor: User and Investor Opportunities							
Distribution of Responses (%) (1= high level of maturity, 5 = low level of maturity)							
	Very Mature (1)	**Mature (2)**	**Moderate (3)**	**Immature (4)**	**Very Immature (5)**	**Mean**	**S.D.**
Bangkok	4.35%	39.13%	39.13%	17.39%	0.00%	2.70	0.82
Hong Kong	40.74%	48.15%	7.41%	0.00%	3.70%	1.78	0.89
Kuala Lumpur	4.00%	16.00%	44.00%	28.00%	8.00%	3.20	0.96
Singapore	40.00%	44.00%	16.00%	0.00%	0.00%	1.76	0.72
Taipei	4.76%	14.29%	38.10%	38.10%	4.76%	3.24	0.94

Keogh et al. (1994) mentioned that a mature market should be able to accommodate a full range of use and investment objectives and also offer opportunities to both local and international investors. Singapore (84%) and Hong Kong (88.89%) are considered to be mature in terms of user and investor opportunities (mean 1.76 and 1.78). Bangkok was seen as between mature and fair (mean 2.70), with most respondents (43.48%) believing that it is mature. The situations in Kuala Lumpur and Taipei are between fair and immature (3.20 and 3.24 respectively). Standard deviations are relatively low, except for the cases of Kuala Lumpur and Taipei, which shows there are some degrees of disagreement in responses on those two cities.

Table 5-11 also demonstrates that there are very small differences for Singapore and Hong Kong (0.02; $P>0.05$; there are no significant differences between two cities, also see Appendix Seven). Bangkok is in third place, behind Hong Kong (mean difference 0.92; $P<0.05$; there are significant differences between Hong Kong and Bangkok, also see Appendix Seven) in average score. The third level includes Kuala Lumpur and Taipei. Respondents perceived that there is less variety and more restriction on investment opportunities in these two cities. There is a 1.47 difference in mean ($P<0.05$; there are significant differences between Taipei and Singapore, also see Appendix Seven) between Singapore and Taipei, which illustrates the great differences of maturity in this respect between the cities.

User and investor opportunities should reflect the level of market openness in general (Armitage 1996). From the result of this assessment, Hong Kong and Singapore are again in the top two positions. This suggests that those two markets have a high degree of freedom, while government intervention is the lowest, with a sound financial and regulatory system. User and investor opportunities are widely open to local and foreign investors in Hong Kong and Singapore. The details are mentioned in Section 7.3.4, 7.3.6, and 7.3.7). In the research of Tse et al. (1997) study, the maximum return for the level of risk (close to the frontier line) can be achieved by investing purely in the property market in Hong Kong. Bangkok, Kuala Lumpur and Taipei all have restrictions in many aspects, such as aliens' ownership and joint-venture business requirements which reduce the willingness of foreigners to invest. This will be discussed further in the section dealing with restrictions on foreign investment (see Section 7.3.6). One respondent in Hong Kong said "*the investment opportunities exist in all of those countries, but with different levels of restriction and openness. In Singapore and Hong Kong, opportunities are widely open to almost everyone, including local and foreign investors. However, the same situation does not apply to rest of the three cities*".

5.3.5 Market Value Stability and Reality

Table 5-12: Assessment of Market Maturity: Market Value Stability and Reality

Assessment of Market Maturity							
Factor: Market Value							
Distribution of Responses (%) (1= high level of maturity, 5 = low level of maturity)							
	Very Mature (1)	**Mature (2)**	**Moderate (3)**	**Immature (4)**	**Very Immature (5)**	**Mean**	**S.D.**
Bangkok	4.55%	31.82%	36.36%	27.27%	0.00%	2.86	0.89
Hong Kong	65.38%	11.54%	19.23%	0.00%	3.85%	1.65	1.06
Kuala Lumpur	8.33%	12.50%	50.00%	25.00%	4.17%	3.04	0.95
Singapore	45.83%	37.50%	4.17%	4.17%	8.33%	1.92	1.21
Taipei	10.00%	25.00%	40.00%	25.00%	0.00%	2.80	0.95

Asian markets are known to be volatile, in that market values change significantly within relatively short periods. Basically, market value should reflect the condition of

demand and supply in the market, such as undersupply or oversupply. Thus, the market value should be able to reflect true market conditions in a mature market (Chang et al. 1995).

Hong Kong (76.92%) and Singapore (83.35%) are regarded as mature in terms of market value stability and reality (mean 1.65 and 1.92). Taipei, Bangkok and Kuala Lumpur are all rated above moderate situation (mean 2.80, 2.86 and 3.04 respectively). A majority of respondents (50.00%) considered Kuala Lumpur as moderate in this aspect, but there are still 29.17% of respondents who regarded Kuala Lumpur as an immature market. Standard deviations are relatively high compared to the previous aspects, especially for Hong Kong (1.06) and Singapore (1.21), indicating that there is quite an amount of disagreement amongst the respondents about the two cities. Some respondents in Singapore believed that market values in Hong Kong and Singapore are not stable, because of the property cycle, which is a characteristic of the mature market. However, they mostly agreed that market values in both cities can reflect market conditions well. One respondent in Singapore mentioned that "*Singapore is mature in many aspects. However, the government has intervened in the property market in the past. Singapore could not be marked as mature in this respect. Owing to government intervention, the market value could not truly reflect the market condition in many countries in the Asia-Pacific*". The diversity of the responses also might be caused by some lack of clarity in the question. Some respondents had difficulty in understanding this question during face to face interviews.

Table 5-12 illustrates that Hong Kong and Singapore have the best market value stability; however the average scores are higher than for previous elements. This might indicate that the stability of market value in those two cities is not quite as mature as in other aspects. Some respondents believed that the level of the value stability is low in a mature market such as London. In this case, Hong Kong would be more mature than Singapore. However, other respondents argued that a mature market should offer a stable environment for the market which should not cause value instability and they believed that Singapore would offer the better environment for value stability. Taipei and Bangkok are in the second group and show that the reality and stability of market value is towards mature status. There is a smaller gap (mean 0.89) between Taipei and Singapore ($P<0.05$; there are significant differences

between two cities, also see Appendix Eight for ANOVA analysis). The average score for Kuala Lumpur is the highest, indicating that the reality and stability of the market value is still in the category of immature. There is a 1.39 mean difference between Hong Kong and Kuala Lumpur ($P<0.05$; there are significant differences between two cities, also see Appendix Eight).

The analysis suggests that Hong Kong and Singapore are mature in this aspect. The market value reflects market conditions well in both cities. One respondent in Hong Kong said "*the market value stability is low in Hong Kong, because of the economic and property cycle, which is the characteristic of being a mature market. The market value can reflect the market condition well in Hong Kong*". Many respondents supported this view. A few respondents considered Hong Kong to be immature, because they believed that mature markets should be able to stabilise values. In Singapore, market value is more stable than Hong Kong because of government interventions in the market, which means the market value does not reflect market conditions as quickly as in Hong Kong. One respondent in Singapore said "*the stability of the market value here is higher than most of the cities in the region in the past 10 years, which can be attributed to the control from the government in the issue or releasing of land and planning permission*". Also, market information is widely open to the public in both cities, which helps to ensure that market value reflects reality.

The situation in Singapore is similar to Taipei. Basically, prime office rents have been stable in Taipei in the past 10 years, and they rapidly reflect market demand and supply conditions (JLW 1995, JLL 2002). However, market information is not transparent enough. Many respondents pointed out that it is not easy to obtain market assessed value through public information, especially in Taipei; property information is widely regarded as confidential business information. This might cause delays in changes in the real market value. One respondent mentioned that "*the government's value is normally lower than the market value, because of tax issues and the general housing survey problems. The true market value is not widely available to people in the public or private sector. As a consequence, the market value from government records cannot truly reflect the current market condition. The value could be out-of-date or even under-valued*". Another respondent said "*it is extremely difficult for*

surveyors to assess property value freely in the past because the property owner would put extra pressure on surveyors in order to get a higher value". From the comments made, the lack of chartered surveyor regulation has caused the problems of assessing market value. Yet most respondents believed that this situation will improve, following the introduction of the chartered surveyor's license in 2001.

In the Bangkok market, some respondents emphasised that there is a big gap between the value recorded by the government and current market value. Respondents stressed that this situation has existed for many years, especially during the property boom period. To keep tax payments low, in the Bangkok market the actual transaction price is generally hidden. As a consequence, it is impossible to assess market value from the government's data bank. Moreover, it is impossible for the general public to assess property value individually; it has to be done via property agents. These constraints make it difficult to assess market value in Bangkok (Armitage 1995, Armitage 1996). The situation in Bangkok might be explained by lack of property market regulations and well-trained surveyors, or maybe moral problems (for example, being honest to report to the price during the transaction and the government's attitude in enforcing the law) (Armitage 1995, Armitage 1996, Brett 2002). In addition, there are no laws regulating valuers, which damages the reality of the market value (Arriyavat 1997). One respondent in Bangkok said "*during the property transaction, the government normally would not hold the actual transaction price owing to tax issues. Buyers and sellers would like to report the lower price to the government in order to avoid the various taxes. Thus, the market value held by government cannot truly reflect the market condition especially in the residential sector. Some government data are seriously out-of-date, and it has worsened since the financial crisis*". Another respondent from an international property consultant firm in Bangkok also mentioned that "*the market conditions were not very clear in Bangkok. If investors ask for the yield of the office market in Bangkok, they would get a vague answer like '10% in the past 10 years'. This shows the poor quality of the property profession and poor reflection of market conditions*".

In the Kuala Lumpur market, respondents believed that market conditions are relatively transparent. However, market value does not reflect market conditions as quickly as in Hong Kong and Singapore. Many respondents stressed that the time lag

is far longer than in Singapore and Hong Kong. The responses about Kuala Lumpur seemed to be diverse. There is one interesting feature of the distribution of the responses. Many local respondents considered Kuala Lumpur as fair or mature in this respect. One local respondent mentioned that "*the market value reality for the local participants is fairly mature as they are dealing with daily market information. It is easier for those local participants to obtain the current up-to-date data, which reflects the market condition well. However, it is difficult for foreign investors to obtain this data. The stability of the market value is fairly low. This is mainly caused by the over-supply and general recession in the region*". One respondent in Singapore also commented: "*Kuala Lumpur is a relative active market in the region. The market value reflects the market condition reasonably well if the government does not try to intervene significantly. The main concern for its reality and stability of the market value is the government's attitude, such as its currency exchange policy. If the government has intervened, the market value might not be truly reflected in the market condition*". A respondent in Kuala Lumpur said "*the government has been trying hard to improve the database. It has published a series of property data in different sectors and regions in order to improve the reality of the market value. However, major international firms are still using their own data for analysis.*"

5.3.6 Property Investment Flexibility

Table 5-13: Assessment of Market Maturity: Property Investment Flexibility

Assessment of Market Maturity							
Factor: Flexibility							
Distribution of Responses (%) (1= high level of maturity, 5 = low level of maturity)							
	Very Mature (1)	**Mature (2)**	**Moderate (3)**	**Immature (4)**	**Very Immature (5)**	**Mean**	**S.D.**
Bangkok	4.55%	22.73%	31.82%	40.91%	0.00%	3.09	0.92
Hong Kong	46.15%	34.62%	11.54%	7.69%	0.00%	1.81	0.94
Kuala Lumpur	4.17%	12.50%	50.00%	25.00%	8.33%	3.21	0.93
Singapore	29.17%	50.00%	8.33%	12.50%	0.00%	2.04	0.95
Taipei	5.00%	10.00%	40.00%	35.00%	10.00%	3.35	0.99

One of the principal characteristics of a mature market is its ability to adjust itself in both the short term and long term (Keogh et al. 1994). In other words, a mature

market should be able to exhibit a fluidity of function between different actors and sectors. In addition, a mature market should also offer a high level of capital liquidity.

Hong Kong (81.77%) and Singapore (79.17%) were deemed to be mature markets in this respect (1.81 and 2.04 respectively). Bangkok, Kuala Lumpur and Taipei are all in the category of immature (mean 3.09, 3.21 and 3.35 respectively). The coefficients of standard deviation, range from 0.92 (Bangkok) to 0.99 (Taipei). This indicates that there are certain levels of disagreement among the respondents. Many respondents mentioned that property investment flexibility is not mature in the region, as there are certain restrictions.

The average mean scores are generally higher than for other questions. This indicates that the general view of investment flexibility is that it is not very mature for these cities. The results fall into two main groups. Hong Kong and Singapore make up the first group. Hong Kong has a 0.23 difference in mean lead over Singapore ($P>0.05$; there are no significant differences between two cities, also see Appendix Nine for ANOVA analysis). The gap between those two cities remains at a similar level to those in previous results, but with higher mean scores. The second group comprises Bangkok, Kuala Lumpur and Taipei. The scores in these three cities are higher than 3, meaning the cities tend to be regarded as immature. The gap between Hong Kong and Taipei is 1.54 which shows statistically significant differences ($P<0.05$, also see Appendix Nine). Many respondents pointed out that the liquidity of the property market and capital market are restricted in these 3 cities, owing to the restrictions on currency transactions and foreign investments, and the level of liberalisation of the financial markets (See Figure 7-1).

Hong Kong is again seen as the most developed market. Respondents mentioned that capital liquidity is very high in Hong Kong compared with other cities in the region. One respondent in Hong Kong said "*there is no restriction in property investment in Hong Kong either in commercial and residential markets. The flexibility is very high which could be counted as mature*". Singapore is in second place. Some local respondents (12.5%) stressed that Singapore is not mature compared with the situation in western markets, such as London and New York. One respondent said "*although Singapore is relatively mature in South-East Asia in many ways, sometimes they still*

cannot reach some western investors' standards; especially with American institutional investors". The other respondent also mentioned that "*there are still some restrictions of property investment in Singapore, such as residential unit restrictions for foreigners. Thus, it cannot be regarded as a completely mature market in this respect*". A respondent in an international firm in Singapore pointed out that "*the capital liquidity is high in Singapore, compared to regional standard. However, the control of the Monetary Authority of Singapore (MAS) and its currency policy would also lower its maturity in terms of investment flexibility*". Bangkok, Kuala Lumpur and Taipei are again in the second level. In the past 10 years, these three markets have improved their investment regulation in order to meet foreign investors' requirements and standards (Colliers Jardine 1997). One respondent in an international consultancy firm in Singapore said "*owing to the intervention of the governments and restriction on foreign investment in Taipei, Kuala Lumpur and Bangkok, the investment flexibility cannot be classified as mature but the situations have improved in the past few years, especially in Taipei*". Some respondents in Kuala Lumpur and Bangkok also pointed out the restrictions on property investment (both commercial and residential properties) in both cities, which also downgrade their level of investment flexibility.

5.3.7 Market Information Aspects

Table 5-14: Assessment of Market Maturity: Market Information Standardisation (Q9)

Assessment of Market Maturity							
Factor: Market Information Standardisation							
Distribution of Responses (%) (1= high level of maturity, 5 = low level of maturity)							
	Very Mature (1)	**Mature (2)**	**Moderate (3)**	**Immature (4)**	**Very Immature (5)**	**Mean**	**S.D.**
Bangkok	4.17%	25.00%	25.00%	33.33%	12.50%	3.25	1.11
Hong Kong	40.74%	40.74%	14.82%	3.70%	0.00%	1.18	0.83
Kuala Lumpur	3.85%	26.92%	38.46%	23.08%	7.69%	3.04	1.00
Singapore	44.00%	40.00%	12.00%	4.00%	0.00%	1.76	0.83
Taipei	4.55%	13.64%	22.73%	54.55%	4.55%	3.41	0.96

A mature market should be able to offer extensive information flows (including information standardisation, availability and quality) which will enable high level, extensive research activities (Keogh 1994, Armitage 1996).

In market information standardisation, Hong Kong (81.48%) and Singapore (84.00%) were deemed to be mature markets (mean 1.18 and 1.76 respectively). Kuala Lumpur, Bangkok and Taipei are all again in the category between fair and immature (mean 3.04, 3.25 and 3.41 respectively). The distribution of the responses for Kuala Lumpur was fairly equally spread, indicating disagreement amongst those respondents (S.D. 1.00). Most regarded Bangkok (45.53%) and Taipei (59.10%) as immature or very immature. Standard deviations are high in Bangkok (1.11) and Kuala Lumpur (1.00), indicating a high degree of disagreement amongst those respondents' perceptions. Many respondents emphasised that the answer would be very different from the points of view of local respondents and foreign respondents respectively.

The level of market information availability has been evaluated twice: in Question 8a (Table 5-16) and Question 9 (Table 5-15) in order to confirm the consistency of answers.

Table 5-15: Assessment of Market Maturity: Market Information Availability (Q9)

Assessment of Market Maturity							
Factor: Market Information Availability							
Distribution of Responses (%) (1= high level of maturity, 5 = low level of maturity)							
	Very Mature (1)	Mature (2)	Moderate (3)	Immature (4)	Very Immature (5)	Mean	S.D.
Bangkok	0.00%	22.73%	40.91%	27.27%	9.09%	3.23	0.92
Hong Kong	66.67%	29.63%	3.70%	0.00%	0.00%	1.37	0.56
Kuala Lumpur	4.00%	28.00%	44.00%	20.00%	4.00%	2.92	0.91
Singapore	60.00%	36.00%	4.00%	0.00%	0.00%	1.44	0.58
Taipei	4.76%	14.29%	33.33%	42.86%	4.76%	3.28	0.96

Table 5-16: Assessment of Property Information: Market Information Availability (Q8a)

Assessment of Property Information							
Factor: Information Availability							
Distribution of Responses (%) (1= extremely good, 5 = extremely poor)							
	Extremely Good (1)	**Good (2)**	**Moderate (3)**	**Poor (4)**	**Extremely Poor (5)**	**Mean**	**S.D.**
Bangkok	0.00%	25.00%	41.67%	33.33%	0.00%	3.08	1.64
Hong Kong	54.55%	39.39%	6.06%	0.00%	0.00%	1.52	0.88
Kuala Lumpur	0.00%	26.67%	53.33%	10.00%	10.00%	3.03	1.65
Singapore	50.00%	46.88%	3.13%	0.00%	0.00%	1.53	0.87
Taipei	0.00%	8.33%	50.00%	41.67%	0.00%	3.33	1.74

In the responses to question 9, Hong Kong (96.30%) and Singapore (96.00%) were considered to be mature (mean 1.37 and 1.44). The results of Question 8a (Table 5-16) show the same results: Hong Kong (93.04%) and Singapore 96.87% were regarded as mature markets (mean 1.52 and 1.53). Kuala Lumpur, Bangkok and Taipei are all in the category between fair and immature in both assessments (mean 2.92, 3.23 and 3.28 in Question 9; 3.03, 3.08 and 3.33 in Question 8a). The standard deviations are all relatively low for all five cities in Table (5-15), but the coefficients of standard deviation are generally higher in Table (5-16). This does not affect the general results.

Table 5-17: Assessment of Property Information: Market Information Quality (Q8b)

Assessment of Property Information							
Factor: Information Quality							
Distribution of Responses (%) (1= extremely good quality, 5 = extremely poor quality)							
	Extremely Good (1)	**Good (2)**	**Moderate (3)**	**Poor (4)**	**Extremely Poor (5)**	**Mean**	**S.D.**
Bangkok	0.00%	24.00%	52.00%	24.00%	0.00%	3.00	1.59
Hong Kong	39.39%	51.52%	9.09%	0.00%	0.00%	1.70	0.96
Kuala Lumpur	0.00%	28.57%	53.57%	14.29%	3.57%	2.93	1.57
Singapore	37.50%	56.25%	6.25%	0.00%	0.00%	1.64	0.94
Taipei	0.00%	16.67%	58.33%	20.83%	4.17%	3.13	1.66

Singapore (93.75%) and Hong Kong (90.91%) were considered to be mature (mean 1.64 and 1.70). Kuala Lumpur (53.57%), Bangkok (52.00%) and Taipei (58.33%) are in the category of fair (mean 2.93, 3.00 and 3.13 respectively). No one (0%) considered the quality of information to be extremely good in these three cities, but some respondents considered market information quality in them to be poor (KL: 17.86%, Bangkok: 24.00%, and Taipei: 25.00%). This differing view of respondents is reflected in standard deviations (KL: 1.57, Bangkok 1.59 and Taipei: 1.66). One respondent in Kuala Lumpur said "*the quality of the property information within the international organisation should normally be good in Kuala Lumpur. However, the general level of information quality would be below the mature level*". Many respondents in Bangkok and Taipei also mentioned this point of view. No respondents considered Hong Kong and Singapore to be immature in aspects of the availability of market information and the quality of the information (Table 5-15, Table 5-16 and Table 5-17), and no one answered that Taipei, Bangkok and Kuala Lumpur offer good quality information in Table 5-17 and good information availability in Table 5-16. These show the great differences in terms of the property information aspects.

Both Questions 8a and 9 asked about market information availability in the five cities. Both results are in the same order. Hong Kong is in the lead, followed by Singapore, Kuala Lumpur, Bangkok and Taiwan. Hong Kong and Singapore are at the top in information availability. Both cities are seen as offering very mature and developed market information. There is little difference in the mean score. However, there is a noticeable gap between first group and second group in market information availability. One respondent in Hong Kong said "*the property market information is extremely mature and available in Hong Kong. There is no other city which could be the same as Hong Kong, which shows the level of the maturity in this respect in Hong Kong*". Another senior researcher in Singapore also agreed with this view and also mentioned that "*Singapore is mature in terms of information availability, but Hong Kong is even more mature and information is widely available to the public and investors. In many cases, Singapore's firms still treat the information as part of their business secrets, especially with the organisation involved with the government's fund management*". Another respondent also mentioned that "*those property consultancy firms in both cities are not very keen to offer their information to academic research field compared to the western countries. If it counts to the level of the availability,*

none of the city can be marked as mature in this respect. The only way to get hold of the data is through the personal network".

The gap between Singapore and Kuala Lumpur is 1.50 and 1.48 in Question 8a and Question 9 respectively ($P<0.05$ there are significant differences between Singapore and Kuala Lumpur, also see Appendix Ten). This shows that the availability of information is seen as having significant differences between the two groups. There is seen to be much information available in the first group. The level of availability is towards very mature in both Hong Kong and Singapore. By contrast, market information is relatively restricted in the second group. Taipei is at the bottom in both questions in terms of market information availability. Many respondents pointed out that market information is restricted in those three cities. One respondent in Hong Kong said "*there are some market research activities in Kuala Lumpur and Bangkok in the 1990s, but there is little research in Taipei. This might be caused by the information availability. Bangkok and Kuala Lumpur have gone through a stage that is pushed by the demand of western investors, but Taipei is still relatively weak in this respect*". One local respondent in Taipei also said "*there are only few firms publishing property market reviews and data in Taipei and most of them are not widely open to the public. If a researcher wants to get hold of the data, it has to be through some personal contacts*". Another local respondent also pointed out that "*property information is kept as business secrets in Taipei but the situation has improved since more international firms have established branches in Taipei*".

Question 8b and 9 assessed market standardisation and information quality (Table 5-14 and Table 5-17 respectively). There is a positive correlation between quality and standardisation of market information. Both Table 5-17 and Table 5-14 show Singapore at the top, followed by Hong Kong, Kuala Lumpur, Bangkok and Taipei. There are 0.5 and 0.6 mean differences between Singapore and Hong Kong in Question 9 and Question 8b respectively ($P>0.05$ there are no significant differences between Singapore and Hong Kong, also see Appendix Ten). The analysis shows that Singapore and Hong Kong are perceived as mature in both market quality and standardisation, aspects with very little difference in the respondents' perceptions. The second group includes Kuala Lumpur, Bangkok and Taipei in that order, in both questions. The quality and standardisation of market information remains fair and less

mature in those three cities. There is again a significant gap between Hong Kong and Kuala Lumpur (1.29 in Table 5-17 and 1.27 in Table 5-14; $P<0.05$, also see Appendix Ten). This shows that Singapore and Hong Kong are not only considered superior to the other three cities in market information availability but also in market information quality and standardisation.

Figure 5-2: Correlation between Informational Availability and the Presence of Property Intermediaries

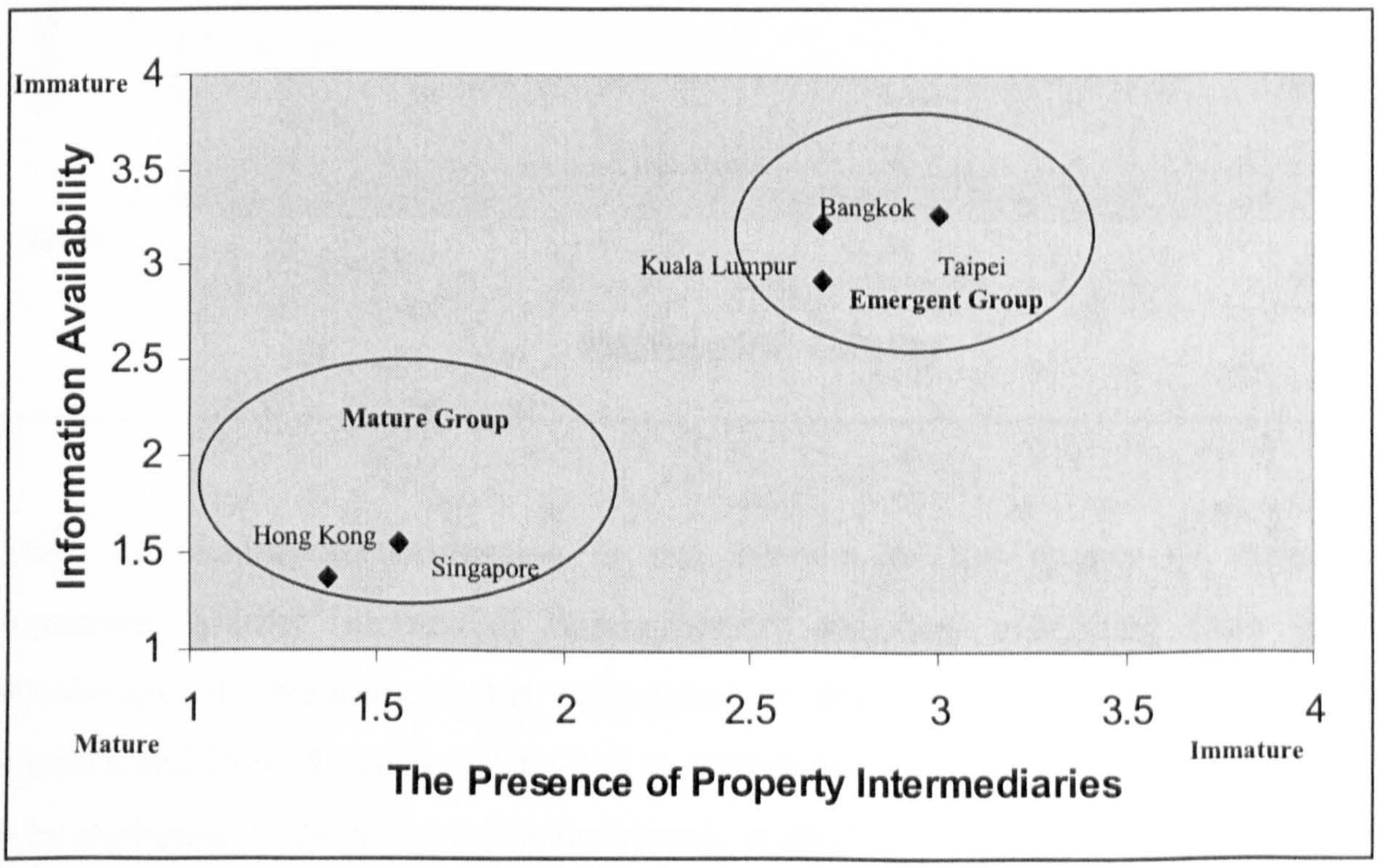
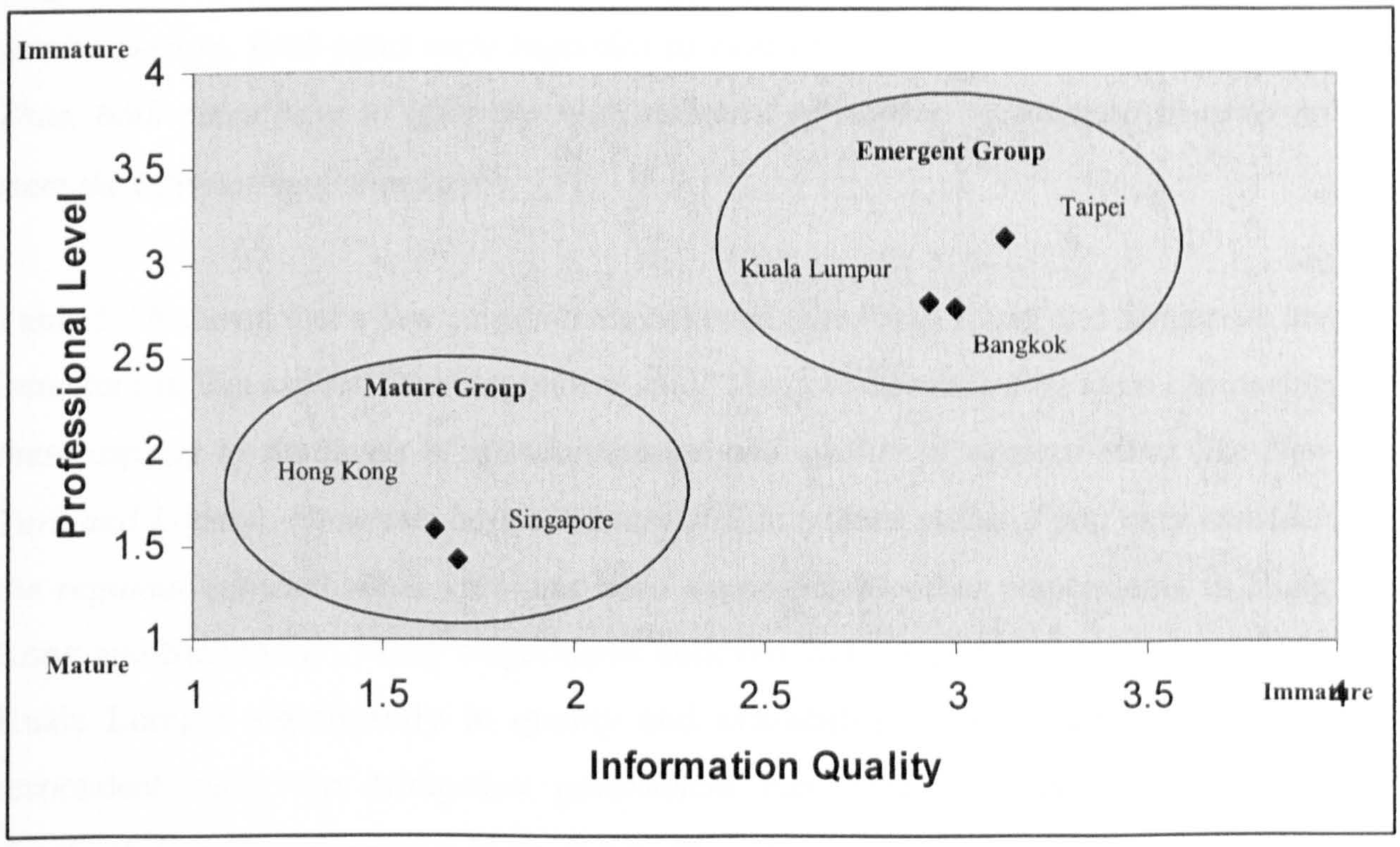


Figure 5-3: Correlation between Property Professional Level and Information Quality



Market information standardisation is one element of the quality of market information. Market information standardisation considers everything from the methodology of obtaining market information to the output of research reports. Singapore and Hong Kong are in the lead in market information standardisation. This can be explained by the high professional levels, market openness and strong presence of property intermediaries (Figure 5-2 and Figure 5-3, and also see Appendix Eleven and Appendix Twelve for cluster analysis). All of those factors contribute to higher standards of market information. Apart from the information released from property firms, the respective governments have specific departments dedicated to releasing market information in order to retain standardisation. There is a correlation between the high presence of property intermediaries (Table 5-10) and the high level of market information standardisation and availability (Figure 5-2). This may be due to the strong presence of sophisticated international property consultancy firms with networks established throughout the region (Armitage 1995, Colliers Jardine 1997). As the results illustrate, the better the level of market information standardisation, the better the level of market information quality. Many respondents were asked to describe the methodology of assessment of market information and most applied the same method in both cities. One respondent in Hong Kong said "*it is very important*

to keep the market information standard across the market. Hong Kong and Singapore both deal with it in an extremely mature way, owing to the nature of the service sectors. Both cities were regarded as centres of service sectors in the region. Thus, both cities have to offer the high standard of market information in order to meet the international standard".

Table 5-14 shows that a few respondents believed that Hong Kong and Singapore are immature in this aspect. One respondent said "*this was because they were comparing these aspects to the levels of standardisation and quality in western cities like New York and London. However, both cities are still in mature status if you only consider the regional context*". This view has been supported by other respondents in Hong Kong and Singapore. Many respondents believed that the situation has improved in Kuala Lumpur significantly in quality and availability of information. One local respondent said "*the Malaysian government has tried to establish a property databank like Singapore and Hong Kong. The government has published a property data book annually which covers different sectors and regions. The standard of the market information has also been improved in the past owing to the improving quality of property professions. All of those factors could boost its maturity level in this respect*". The other local respondent also mentioned that "*there are some differences between local firms and joint-venture firms in terms of the quality of the property information in Kuala Lumpur. Generally speaking, an international joint-venture firm offers a higher standard of information and also carries out more detailed research. The differential of the quality of the information between firms could be the major problem when seeking for advice of carrying out some detailed research in Kuala Lumpur. As a consequence, Kuala Lumpur could not be considered to be mature*". This view was also been mentioned by some respondents when assessing the situation in Bangkok.

In the Bangkok office market, there are no organisations, rules or standards within the property market or regular government report (Armitage 1996). This situation is similar to the Taipei office market. This might cause consultant firms to use different ways of assessing these markets. Although both governments are trying to establish information databases, they are only in their early stages. Armitage et al. (1996) mentioned that poorly developed systems of data collection, access and dissemination

are institutional constraints in the Bangkok property market. These differences are apparent from the inconsistent methodologies used for obtaining data and the lack of standardisation of the reports. In Taipei, one local respondent said "*there is very limited market information available across the city, because most of the firms regard this information as trade secrets. As a consequence, it is difficult for the public to obtain a good quality of market information without paying fees*". The attitude of keeping market information confidential is different from Hong Kong and Singapore, which are both much more open.

In summary, there is market information available in government statistics and from private property companies in all the cities, with different degrees of difficulty of obtaining it. Most of the firms in Hong Kong and Singapore follow similar methodologies to assess market information. The information is widely and openly available to the public in Hong Kong and Singapore. In Kuala Lumpur, Taipei and Bangkok, the office markets are relatively small compared to Hong Kong and Singapore, and the firms are smaller. They are mainly locally based or joint ventures (see above). Market information is regarded as a trade secret in Bangkok and Taipei and many respondents mentioned that it is difficult for the public to go to property companies to obtain free market information in these cities. The information is not even available for academic use in many cases. This will affect property information standards and professional levels, as there is less demand and less competition in these cities.

5.3.8 Development Stability

Table 5-18: Assessment of Market Maturity: Development Stability

The Assessment of Market Maturity							
Factor: Development Stability							
Distribution of the Responses (%) (1= high level of maturity, 5 = low level of maturity)							
	Very Mature (1)	**Mature (2)**	**Moderate (3)**	**Immature (4)**	**Very Immature (5)**	**Mean**	**S.D.**
Bangkok	0.00%	14.29%	38.10%	42.86%	4.76%	3.38	0.80
Hong Kong	48.00%	40.00%	12.00%	0.00%	0.00%	1.64	0.70
Kuala Lumpur	12.50%	12.50%	58.33%	12.50%	4.17%	2.83	0.96
Singapore	56.53%	30.43%	13.04%	0.00%	0.00%	1.56	0.73
Taipei	5.26%	31.58%	52.63%	10.53%	0.00%	2.68	0.75

A mature market should offer a sound environment in order to maintain stability of the development environment (Keogh et al. 1995, Armitage 1995).

Singapore (86.96%) and Hong Kong (88.00%) are regarded as mature in this aspect (mean 1.56 and 1.64). Taipei and Kuala Lumpur are rated above moderate (mean 2.68 and 2.83). Bangkok comes bottom in this aspect (mean 3.38). Most respondents saw Bangkok (47.62%) as an immature market, and no one considered it a very mature market. It is apparent that the coefficients of standard deviation are mostly low, indicating that most respondents share similar views. Standard deviation is relatively high in Kuala Lumpur, which is caused by the fact that many respondents were not sure about the exact timing to answer this question. One respondent in Kuala Lumpur said "*the development stability was fairly stable since early 1990s till 1997 in Kuala Lumpur, but there were some deferred projects in the city after the financial crisis. After 2000, the situation improved with the stability of the financial and economic situation and the government's intervention*".

Table 5-18 also illustrates that the difference of mean between Singapore and Hong Kong is just 0.07 ($P>0.05$, there are no significant differences between two cities, also see Appendix Thirteen); the gap between Singapore and Taipei is 1.64 ($P<0.05$; there are significant differences between Taipei and Singapore, also se Appendix Thirteen);

and the gap between Singapore and Bangkok is 1.81 ($P<0.05$; there are significant differences between two cities, also se Appendix Thirteen). This suggests that the gap in level of development stability is large between the different groups. Bangkok appears relatively unstable in terms of development. General speaking, most cities, except Bangkok, are perceived as relatively stable.

Development projects have to rely on finance. The level of development stability will also relate to the level of the financial system's stability. In this respect, Hong Kong and Singapore are seen as the most mature cities. This has mainly resulted from sound financial and banking systems. These facilities help to stabilise development activities. Many respondents praised the well-regulated banking and finance systems in Hong Kong and Singapore. One respondent in Hong Kong mentioned that *"the banking and financial systems are very mature and stable in Hong Kong... As a consequence, the development environment is very stable in Hong Kong"*. Many respondents also observed that the situation is similar in Singapore, except that the government there has more power.

In Taipei, development stability is rated as between mature and fair. This might be attributed to the well-regulated banking system. However, there were some local banking crises in early 2001 which caused delays in many projects (JLL 2002). This may downgrade its development stability. A local respondent said "*There are a few problems which might cause development instability. One is the local banking crisis in 2001, which has caused some difficulties for a few developers. Yet the government intervened in order to complete some major development projects. The other problem is the planning system. The planning system in Taiwan means it can take a long time before a project can be started. Thus, the cost of development will increase, depending on how long it takes to get construction permission*". Development stability in Kuala Lumpur and Bangkok is poor. Respondents mentioned that many developers have had difficulties paying off their debts, which caused delays in many development projects after 1997. This could also be explained by the high level of NPL in both cities. They also stressed that the situation has not improved significantly since then, especially for the Bangkok office market. There are plenty of half-built and empty developments across both cities. One respondent in an international firm in Bangkok said "*the development market is still relatively weak for the office market*

and demand is still weak. Many abandoned projects still exist in the city of Bangkok. The vacancy rate is still over 20% for prime office. With all those negative factors, the development market remains unstable and weak".

5.3.9 Quality of Property Products

Table 5-19: Assessment of Market Maturity: Quality of Property Products

Assessment of Market Maturity							
Factor: Quality of Property Products							
Distribution of the Responses (%) (1= high level of maturity, 5 = low level of maturity)							
	Very Mature (1)	**Mature (2)**	**Moderate (3)**	**Immature (4)**	**Very Immature (5)**	**Mean**	**S.D.**
Bangkok	4.76%	19.05%	71.43%	4.76%	0.00%	2.76	0.62
Hong Kong	56.00%	40.00%	4.00%	0.00%	0.00%	1.48	0.59
Kuala Lumpur	17.39%	30.43%	43.48%	4.35%	4.35%	2.48	0.99
Singapore	56.52%	39.13%	4.35%	0.00%	0.00%	1.48	0.59
Taipei	10.53%	42.11%	36.84%	10.52%	0.00%	2.47	0.84

Urban design and quality of property products give investors their first impression of a city and provide an image of the level of maturity. Hong Kong (96.00%) and Singapore (95.65%) are considered to be mature markets in this respect (mean 1.48 and 1.48). Taipei, Kuala Lumpur and Bangkok are above average standard (2.47, 2.48 and 2.76 respectively). Standard deviations are low, indicating that most respondents share similar views.

Respondents believed that Singapore and Hong Kong have both achieved a mature level in this respect. The situations in Taipei, Kuala Lumpur and Bangkok in the second group are similar, indicating that the quality of property products appears to be good but less mature than Singapore and Hong Kong. There are fairly small differences within the second group. Although all five cities are seen to have achieved mature status in this aspect, there is still a gap between the top city (Singapore) and the bottom city (Bangkok) which might cause some disparity in market status ($P<0.05$; there are significant differences between two cities, also see Appendix Fourteen).

High quality, centrally located office buildings are available in all cities, particularly in Hong Kong and Singapore. In Hong Kong and Singapore, the quality of property products has achieved international standards in terms of A class office buildings (Colliers Jardine 1997). There are many A class and intelligent buildings across those two cities. Land is scarce in Hong Kong and Singapore. This affects the character of business buildings, which tend to be taller and more efficient. From various property reports (JLW 1995, Knight Frank, Colliers Jardine 1997, JLL 2002), more than 50% of existing office buildings in the CBD areas are of "A" grade quality. An active building programme in the 1980s and 1990s has equipped Singapore with a substantial stock of high quality office buildings to meet international standards in the CBD area (JLL 1997). Strong demand was the main driver for the best CBD offices in the 1990s, with very low vacancy rates in A class buildings. One respondent in an international firm in Singapore mentioned that "*the quality of the property is extremely high in Hong Kong. It is one of the highest in the world. The concept of 'intelligent' buildings is widely applied in the prime office buildings in Hong Kong. They have also appeared in the CBD area in Singapore. However, there are far less 'intelligent' buildings in the city of Kuala Lumpur, Taipei and Bangkok*".

There are a mixture of A class buildings and old buildings in the prime office area of Kuala Lumpur and Taipei (Colliers Jardine 1997). The overall level of the property products' quality is improving in these two cities (JLL 2001). Due to lack of modern amenities and increased congestion in old central areas, new CBD areas are emerging in those two cities with high quality property products, such as KLCC in Kuala Lumpur and the World Trade Centre and Taipei 101 in Taipei. Modern office accommodation is readily available in the new developed areas in both cities. Some respondents mentioned that the concept of property maintenance needs to improve. One local respondent in Taipei said "*the east part of the city is a model for high quality properties. However, there are many old buildings which have been built in the mid-1980s in the city. These old buildings are mainly used by local business. Therefore, the overall quality of office buildings is mixed*". Many respondents also stressed the same situation in the cities of Kuala Lumpur and Bangkok.

There is no clearly identified CBD area in Bangkok and there are fewer A class buildings there, compared to the other cities (CBRE 2003: Bangkok Report). In

addition, the buildings were mainly built in the late 80s or early 90s during the property boom. One respondent said "*The standard of those so-called "A" class buildings in Bangkok prime office market are generally below an international "A" class standard. This is in comparison with its neighbourhood countries, such as Singapore and Hong Kong. Bangkok's office building standard is even below Kuala Lumpur these days*". This can possibly be explained by its poor planning zoning system and poor development stability.

5.4 Summary

Table 5-20: Rank Order of Market Maturity (equal weighted)

	Hong Kong	Singapore	Bangkok	Kuala Lumpur	Taipei
Sum of all Factors	15.83	16.66	27.21	29.55	30.88
Average	1.58	1.67	2.71	2.96	3.09
Rank	1	2	3	4	5
Category	Mature	Mature	Emergent/Fair	Emergent/Fair	Emergent/Fair

Table 5-20 illustrates the average score and the sum of each factor in each city (equal weighted for each factor). The average score of a mature market would be less than 2; scores between 2.1 and 3.5 are considered to be emergent markets and scores above 3.5 are considered to be immature or emerging markets.

Hong Kong and Singapore have mature status with average means of 1.58 and 1.67 respectively. From the previous analysis, Hong Kong and Singapore are in the lead on every factor assessed, indicating that they are superior to the other three cities in those respects. Bangkok, Kuala Lumpur and Taipei fall into the category of fair or emergent (mean 2.71, 2.96, and 3.09 respectively). The order of the three bottom cities changes for different factors. Bangkok comes third in respects of property professional level; the presence of property intermediaries; user and investor opportunities; and property investment flexibility. However, the gap between Bangkok and Kuala Lumpur is not big in many areas. Taipei comes bottom in many aspects, such as: market openness; property services and professional level; user and investor opportunities; investment flexibility; and market information standardisation and availability.

Hong Kong and Singapore are both seen as mature in their average scores and there is a small difference in the mean score (0.09) between them, indicating that both cities have a certain level of similarity in many respects. They both offer substantial and good quality services. There is a 1.1 mean difference between Singapore and Bangkok and a 1.51 mean difference between Hong Kong and Taipei. This shows that the maturity level has significant differences within those two groups in general. As a result, the level of maturity in property markets is towards very mature in both Hong Kong and Singapore. On the other hand, the level of property market maturity is seen as fair in the second group, comprising the rest of the cities.

Table 5-21: Level of Market Maturity

Level of Market Maturity					
Distribution of Responses (%) (1= mature market,2= emergent market, 3 =emerging market)					
	Mature Market (1)	**Emergent Market (2)**	**Emerging Market (3)**	**Mean**	**S.D.**
Bangkok	8.57%	60.00%	31.43%	2.23	0.60
Hong Kong	100.00%	0.00%	0.00%	1.00	0.00
Kuala Lumpur	7.89%	78.95%	13.16%	2.05	0.46
Singapore	100.00%	0.00%	0.00%	1.00	0.00
Taipei	16.13%	61.29%	22.58%	2.06	0.63

Respondents were asked to evaluate the level of market maturity by marking 1 (mature market), 2 (emergent market) or 3 (emerging market) in order to confirm the consistency of the results of question 9 (Table 5-20). Hong Kong (100%) and Singapore (100%) are unanimously considered to be mature markets (means are both 1). Kuala Lumpur (78.95%), Taipei (61.29%) and Bangkok (60.00%) are all regarded as emergent markets (mean 2.05, 2.06, 2.23 respectively). The standard deviations are very low in all cases. This indicates that most respondents share similar views on the level of property market maturity, especially in the case of Singapore and Hong Kong (S.D. 0 in both cases). The results are also consistent with the Jones Lang LaSalle's Transparency Index (2004) (also see Table 2-8).

In Table 5-21, the distribution of responses for Bangkok, Taipei and Kuala Lumpur is fairly wide. Therefore, it is useful to breakdown the responses from local respondents and non-local respondents for the three cities. Table 5-22 shows the perception of

development levels, but separates respondents into local and non-local. In the case of Taipei, there are few differences between the two groups' perceptions: all respondents considered Taipei as emergent. In the cases of Bangkok and Kuala Lumpur, there is a gap between the local respondents' and non-local respondents' perceptions. Local respondents in those two cities tend to regard their markets as more developed (more mature) than non-local respondents. However, both cities are still regarded as emergent. Many respondents in Bangkok and Kuala Lumpur mentioned that local-based participants experience fewer problems obtaining local market information, which might explain this diversity in views.

Table 5-22: Results of Local Respondents and Non-Local Respondents for the Level of Maturity

	Bangkok	Taipei	Kuala Lumpur
Local Respondents (Mean)	1.83	2	2
Non-local Respondents (Mean)	2.28	2.09	2.44

Question 13 (Table 5-21) is designed to test the consistency of the results from question 9 (Table 5-20) about the level of market maturity. Hong Kong and Singapore are considered to be mature market in both tables (Table 5-20 and 5-21). Kuala Lumpur, Taipei, and Bangkok are all in the category of emergent markets, but with a different order. Figure 5-4 illustrates the results of the both assessments and consistency.

Figure 5-4: The Correlation between Different Maturity Assessments:

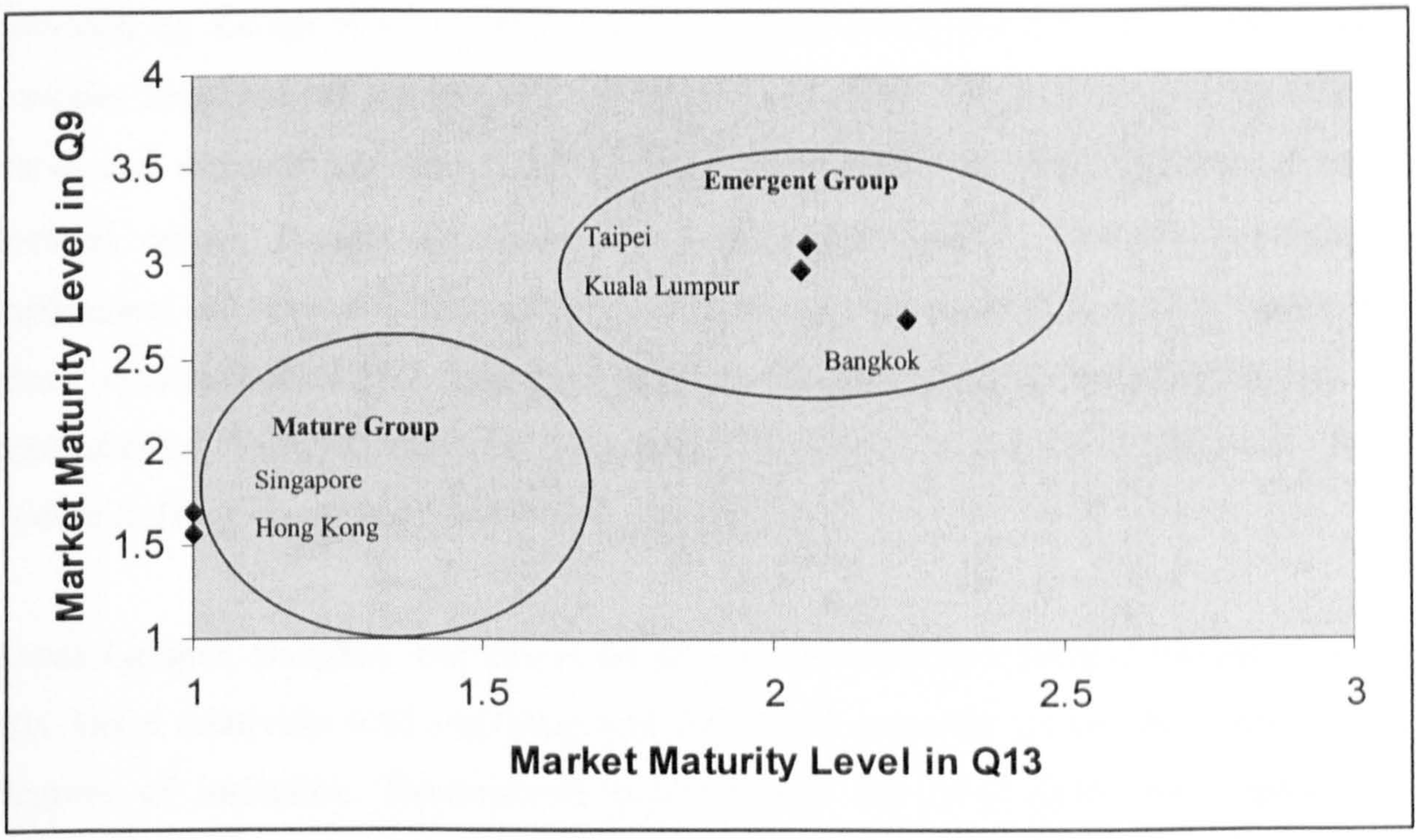


Table 5-23: Maturity Level of South-East Asian Cities

Country	Maturity
Hong Kong	Nearly Established
Singapore	Nearly Established
Taiwan	Emergent
Malaysia	Emergent
Thailand	Emergent

Source: Lee (2001)

Lee (2001) also assesses the maturity level in some countries (Table 5-23). Taiwan, Malaysia and Thailand have moved to a stage of rapid development towards maturity. Thus he categorised them as emergent markets. Hong Kong and Singapore have more established markets, and he also mentioned that both markets are likely to offer the "best" form of investment opportunities to institutional investors. His findings are matched by the results of the survey (Table 5-20 and Table 5-21), which place Hong Kong and Singapore as in the category of mature markets and Taipei, Kuala Lumpur and Bangkok emergent markets.

To sum up, respondents felt that the property markets in Hong Kong and Singapore were relatively stable and they were largely considered to be mature markets. Both cities offer wider ranges of opportunities of investment activities and more efficient

operation of the property market. This confirms the requirements of a mature market provided by Keogh et al. (1994): mature markets should be able to accommodate complex requirements for use and investment activities; offer extensive information flows and research activities; offer an open environment in spatial, functional and sectoral terms; present an extensive property profession, with its associated institutions and networks; and provide a high level of capital liquidity. This finding is also consistent with Lim's finding (2000), that Singapore is a mature market with a sophisticated financial structure. Investment flexibility is the factor which is less mature in Hong Kong and Singapore in the analysis.

Kuala Lumpur, Bangkok and Taipei are all considered to be emergent markets. Each city has a relatively well regulated and developed property market but with some degrees of limitation. Respondents believed that the three cities are improving towards a mature level. Overall, respondents perceived that the five cities are mostly above a moderate level, but there is still a clear distinction between the mature group and the emergent group, particularly in the aspects of market openness; market information standardisation; market information availability and development stability. Those distinctions could still cause some diversity of market movements and activities. Many respondents also mentioned that the rate of return in mature markets such as Hong Kong and Singapore is low but stable in the region. However, the rate of return is relatively high in emergent markets but also with higher risk. This perception is also consistent with Lim's findings (2000).

Market maturity is only a starting point to understanding market behaviour and trends for the five cities. Chapter 6 seeks to identify the relationship between office rental value and macroeconomic factors based the framework of demand and supply interaction, using a quantitative approach.

Chapter 6 Empirical Studies

6.1 Introduction

Chapters 1, 2 and 3 described why office rental value is the best variable to use to explain the office investment market in South-East Asian cities. This chapter examines the relationship between office rental value and macroeconomic variables (proxy to demand and supply of office markets). The main factors governing this analysis are based on previous empirical studies and the data availability for the five cities.

6.2 Data Range

The data for office real gross rents and office net effective rents in Singapore, Hong Kong, Kuala Lumpur and Bangkok were obtained from Jones Lang LaSalle, Singapore. The rental values were provided in local currency per square metre per annum for prime office market and investment grade office stock. The length of the time-series is limited to fourteen years starting in 1988. The data for office real gross rent and office net effective rent in Taiwan were gathered from CB Richard Ellis, Taipei. The rental value was provided in local currency per ping per annum for prime office market and investment grade office stock. The length of the time-series is also limited to fourteen years starting in 1988. The office net effective rents and office net gross rents in this analysis are all inflation-adjusted. The sample for the rental data refers to prime rents or the rental values of the best offices in the best locations in all cases. This selection bias may have important implications for the results of any investigation into the relationship between office rents and fluctuations in economic activity, as rental values in this particular class of office may be less susceptible to changes in the economic situation (Giussani et al. 1993a, 1993b).

The data for the supply side variable changes in office floor space were obtained from Jones Lang LaSalle for the cases of Singapore, Hong Kong, Kuala Lumpur and Bangkok, whereas, changes in office floor space for Taipei were provided by CB Richard Ellis, Taipei.

The data for the demand side variable real GDP are reported in national currencies for all five cases annually, and were obtained from Grosvenor Property, London. The real

interest rates and real prime lending rate are also on an annual basis, and were also from the databank of Grosvenor Property, London. The variables for unemployment rates and service sector output were obtained from the respective Asian Development Bank publications, from 1988 to 2001 annually, except for the case of service sector output for Bangkok, which was only available from 1991.

6.3 Results of Empirical Studies

6.3.1 Cross-sectional analysis

Before embarking on a full-scale analysis of the relationship between office rental values and fluctuations in economic activities and office floor space, it is useful to carry out a cross-sectional analysis of the South-East Asian cities included in this study. To this end, changes in office net effective rents ($\Delta 1\ Rent_i$) over the period 1988-2001 are regressed across the five cities against the following variables over the same period: changes in floor space ($\Delta 1\ FS_i$); changes in real GDP ($\Delta 1\ GDP_i$); changes in unemployment rate ($\Delta 1\ Un_i$); changes in interest rate ($\Delta 1\ I.R_i$); changes in prime lending rate ($\Delta 1\ L.R_i$); and changes in service sector output ($\Delta 1\ SO_i$). Changes in effective rent are regressed individually against the changes in each independent variable. In addition to the period 1988-2001, the sub-periods 1988-1997 and 1998-2001 are also investigated, owing to the emergence of the regional financial crisis in 1997. This analysis will allow us to see the differences across the region before and after financial crisis. Table 6-1 summarises the results of the estimation of the cross-sectional ordinary least squares (OLS) regressions for the three periods.

Table 6-1: Cross-sectional analysis

	1988-2001	1988-1997	1998-2001
Floor Space	**OLS estimation of Δ1 Rent$_i$ = A + B Δ1 FS$_i$**		
A	*370.726 (2.25)*	*386.805 (1.99)*	*267.605 (0.75)*
B	*-0.00843 (2.74)*	*-0.004329 (1.59)*	*-0.047 (1.75)*
R^2	*0.110*	*0.035*	*0.152*
Real GDP	**OLS estimation of Δ1 Rent$_i$ = A + B Δ1 GDP$_i$**		
A	*24.121 (0.18)*	*137.681 (0.84)*	*-176.176 (0.69)*
B	*0.007381 (1.08)**	*0.004829 (0.62)*	*-0.082 (0.54)*
R^2	*0.018*	*0.009*	*0.016*
Unemployment Rates	**OLS estimation of Δ1 Rent$_i$ = A + B Δ1 Un$_i$**		
A	*73.559 (0.57)*	*252.47 (1.79)*	*-111.267 (0.42)*
B	*45.679 (0.31)*	*530.69 (2.29)**	*-125.975 (0.58)*
R^2	*0.001*	*0.109*	*0.018*
Interest Rates	**OLS estimation of Δ1 Rent$_i$ = A + B Δ1 I.R$_i$**		
A	*109.475 (0.88)*	*143.312 (1.09)*	*-154.135 (0.55)*
B	*196.648 (2.52)**	*336.814 (3.32)**	*17.768 (0.13)*
R^2	*0.091*	*0.205*	*0.001*
Prime Lending Rates	**OLS estimation of Δ1 Rent$_i$ = A + B Δ1 L.R$_i$**		
A	*98.151 (0.78)*	*138.28 (0.92)*	*-177.586 (0.61)*
B	*143.561 (1.89)*	*230.44 (2.31)**	*-9.081 (0.06)*
R^2	*0.053*	*0.110*	*0*
Service Sector Output	**OLS estimation of Δ1 Rent$_i$ = A + B Δ1 SO$_i$**		
A	*-42.121 (0.34)*	*135.205 (0.8)*	*-347.004 (1.56)*
B	*-0.000848 (0.16)*	*-0.09427 (0.51)*	*0.001275 (0.23)*
R^2	*0*	*0.007*	*0.003*

*Note: Figures in parentheses are t-values; * shows which B coefficients are significant at 5% level.*

It is clear from Table 6-1 that changes in real GDP and changes in service sector output do not consistently explain variations in office rental value across the cities. The values for all the equations featuring these estimated coefficients are statistically insignificant, with many wrongly signed. Moreover, the R^2 statistics are also very low in all cases.

Clearly, there are more significant variables in the period of 1988 – 1997, the time of the property and economic boom across the region, particularly changes in interest rates and changes in prime lending rates. However, changes in floor space also shows significant impact in the period of 1998 -2001 (after the financial crisis). Although the second sub-period is short, it is still worth to perform the cross-sectional analysis after the regional financial crisis (Giussani et al. 1993a). Both situations could be explained by the fact that there was an over-supply problem and interest rates/lending rates are one of the main drivers of fluctuation of office rental values in the region.

The case of changes in interest rates appears more helpful. The whole sample period equation using real interest rates as the regressor suggests that changes in this variable account for 9% of the observed variation in office net effective rents in the five cities. The period 1988 – 1997 shows an even higher coefficient of determination, 20.5%. The coefficient estimates for changes in prime lending rates appear both correctly signed and statistically significant only between 1988 and 1997. Changes in unemployment rate appears to be significant in the period of 1988 -1997, but the coefficient estimated is wrongly signed.

In terms of changes in floor space, the result suggests that changes in this variable could explain 11% of the variation in office net effective rent in the five cities for the whole period 1988 to 2001. The coefficient estimates appear both correctly signed and significant. Changes in office floor space also improve to 15.2% as a determinant of rental value in the second half of the period (1998-2001). This implies that the oversupply problem existed across the region after the financial crisis.

In spite of the limitations of cross-sectional analysis in terms of its explanatory power, the results reported in Table 6-1 are encouraging. They suggest that fluctuations in office rental value in South-East Asian cities may be explained to some extent by reference to the same broadly-defined independent variables as seen in Western markets. The poor explanatory power shows that this might relate to the quality and consistency of data and the development level of the property market (maturity) in the five cities, rather than fundamental differences in economic relationships.

6.3.2 Step One Analysis

6.3.2.1 Office Real Gross Rent

The starting point for this analysis is to estimate Equation (4) from Chapter 3 (See Chapter 3.4.4). Using office real gross rental value in City i regressed individually on 6 different variables (variable i), Table 6-2 exhibits the estimated coefficient and the R^2 statistic for the 6 equations for each city in the analysis. The log value is used to test whether there is a significant log linear relationship between office real gross rental value and independent variables.

Equation 4: OLS estimation of Rent $i_t = A + B * Variables\ ji_t$

where i is City $_i$; j is variable $_j$, and t is time.

Table 6-2: OLS estimation of Real Rent $i_t = A + B * Variables\ ji_t$

	Floor Space		GDP		Unemployment rates		Interest rates		Lending Rates		Service output	
	B	R^2	B	R^2	B	R^2	B	R^2	B	R^2	B	R^2
Singapore									45.260 (1.836)	0.219	1655.955 (2.006) *	0.251
Hong Kong											6781.25 (1.935) *	0.238
Taipei	-0.005274 (1.938)	0.273			169.657 (3.532)	0.508					418.553 (4.524) *	0.719
Kuala Lumpur			805.427 (3.136) *	0.45	-93.839 (5.493)	0.715			70.841 (2.325)	0.311	874.147 (3.826) *	0.549
Bangkok							37.725 (2.907)	0.413				

*Note: Figures in parentheses are t-value; * means log values used*

There are several interesting points in Table 6-2:

Firstly, whilst there are few significant coefficient estimates in Table 6-2, there is at least one significant variable in each city.

Secondly, service sector output seems significant in four of the cities. Looking at the significant variables, changes in floor space, which represents a supply-side variable, only appears to be significant in the Taipei office market.

Thirdly, looking at the coefficient of determination (R^2), several exceed 40%, especially in the unemployment rates equation for Taipei and Kuala Lumpur; and service sector output equation for Taipei and Kuala Lumpur, which are statistically significant.

Fourthly, unemployment rates, prime lending rates and service sector output are the variables which appear to be significant in more than one case.

Fifthly, there are at least two significant variables in the potentially less mature markets of Taipei and Kuala Lumpur (especially the latter).

Finally, log value seems to be significant in 4 out of 5 service sector outputs.

A close examination of Table 6-2 reveals a number of other interesting results. The level of service sector output appears to be the most common and important variable. It can be used to explain the office rental value in 4 cases. In Singapore and Hong Kong, service sector output can explain office rental value by 25.1% and 23.8% respectively. In Taipei, Kuala Lumpur and Bangkok, it explains 59.2%, 54.9% and 64.9% of office rents respectively. Most of the service sector outputs are in log value, except in the case of Hong Kong. Service sector output seems to have a stronger impact on emergent markets (Taipei, and Kuala Lumpur) than mature markets (Singapore and Hong Kong). Floor space only appears significant in the Taipei office market with the correct sign. Unemployment rate shows a very strong explanatory power in Taipei and Kuala Lumpur, and their R^2 are 50.8% and 71.5% respectively. There are four significant variables in the Kuala Lumpur office market's equations. They are real GDP, unemployment rates, prime lending rates, and service sector output. Real GDP and prime lending rates only appear to be significant in Kuala Lumpur. This result suggests there are high demand-side drivers in the Kuala Lumpur office market. Interest rates have shown significant effects on office rents in Bangkok.

Largely, it is demand-side variables that are significant in the 5 cities. The exception is floor space in Taipei. This result shows it is the demand-side variables which influence South-East Asian cities rental markets. They differ from city to city, but service sector output seems to be commonly significant.

6.3.2.2 Office Net Effective Rents

After using office real gross rent to regress 6 different variables (variable i) individually in each city (City i), effective rent is also regressed on the 6 independent variables individually, following Equation (4). The reason for using net effective rent is to account for the effect of rent-free periods, because they differ from city to city.

Table 6-3: OLS estimation of Effective Rent i_t = A + B * Variables ji_t

	Floor Space		GDP		Unemployment rates		Interest rates		Lending Rates		Service output	
	B	R^2	B	R^2	B	R^2	B	R^2	B	R^2	B	R^2
Singapore											1522.509 (1.994) *	0.248
Hong Kong	-0.00163 (2.04)	0.257									6744.967 (1.827) *	0.218
Taipei			-808.468 (2.81) *	0.397					103.224 (3.039)	0.435		
Kuala Lumpur			805.427 (3.136) *	0.45	-91.370 (5.593)	0.723			67.867 (2.288)	0.311	874.147 (3.826) *	0.549
Bangkok							399.662 (3.116)	0.447				

*Note: Figures in parentheses are t-value; * means log value is used*

From the initial examination, there are several interesting points to be taken from Table 6-3. Firstly, each city has at least one significant variable in Equation (4). Secondly, service sector output appears significant in 3 out of 5 cities, except the cases of Taipei and Bangkok. Looking at the significant variables, changes in floor space, representing a supply-side variable, only appears to be significant in Hong Kong. Thirdly, the coefficients of determination (R^2) sometimes exceed 40%, which are statistically satisfying results, especially in the cases of unemployment rates in

Kuala Lumpur (72.3%), and service sector output in Kuala Lumpur (54.9%). Finally, there are at least two significant variables in Hong Kong, Taipei and Kuala Lumpur.

A closer examination of Table 6-3 reveals further interesting results. Service sector output seems to be the most common and important variable. It can be used to explain the office rental value in Singapore, Hong Kong and Kuala Lumpur. In Singapore and Hong Kong, service sector output can explain the office rental value by 24.8% and 21.8% respectively. In Kuala Lumpur, service sector output can explain office rental value by 54.9%. Changes in floor space only appear to be important in Hong Kong with the correct sign. Real GDP shows strong influences on office rental values in Taipei and Kuala Lumpur. Log values in both cities appear to be more significant in the statistical analysis, but for Taipei is incorrectly signed. Prime lending rates also show significant impacts on office rental values in the cases of Taipei and Kuala Lumpur. There are four significant variables in Kuala Lumpur's equations: real GDP, unemployment rates, prime lending rates, and service sector output. Unemployment rate only appears to be significant in the case of Kuala Lumpur with the highest explanatory power (R^2=72.3%). This also indicates that high demand elements are the main drivers of office rental values in Kuala Lumpur.

There are a large number of demand-side variables significant in the 5, apart from floor space in Hong Kong. This result demonstrates that demand-side variables have a large influence on office rental movements, although the variables differ from city to city. It is worth mentioning that service sector output appears to be the most common demand-side variable in Equation (4). Service sector output looks to be the main explanatory variable in Singapore with explanatory power of 24.8%. In Kuala Lumpur, unemployment rate seems to be the predominant variable in office rental movements (R^2 = 72.3%).

Changes in floor space only appear in Hong Kong with 25.7% of explanatory power in office rental movement. This indicates that Hong Kong office rental movement is also driven by the office floor stock in this analysis.

All significant coefficients for floor space, unemployment rates, interest rates and prime lending rates are correctly signed. Tables 6-2 and 6-3 both follow Equation (4).

The major difference is use of a different dependent variable. In Table 6-2, the dependent variable is office real gross rental value; whereas the dependent variable in Table 6-3 is office net effective rental value.

Comparing Table 6-2 and Table 6-3, there are both similarities and differences in the assessment of Equation (4).

Firstly, changes in floor space only appears to be significant in Taipei (Table 6-2) and in Hong Kong (Table 6-3), indicating that the supply-side variable does not have a significant impact on office rental value in the region according to both assessments. Both significant cases have the correct signs. Secondly, there are more significant variables in Table 6-3 and the coefficients of determination (R^2) are generally higher in Table 6-3 than in Table 6-2.

Thirdly, Taipei and Kuala Lumpur appear to have at least two significant variables in both Table 6-2 and Table 6-3, although most significant variables in Taipei show incorrect signs in Table 6-3.

Fourthly, services sector output appears to be the most common and significant variable in both tables, especially in the case of Singapore and Hong Kong.

Fifthly, there are four consistent significant variables in Kuala Lumpur in both tables, which confirm the strong demand-side drivers on the office rental market movements there. Unemployment rate appears to be the predominant variable in both tables for Kuala Lumpur.

Sixthly, the significant variables in both tables are completely different in the case of Taipei. In Table 6-2, floor space, unemployment rate and service sector output are the significant variables; however, real GDP and prime lending rate appear to be significant in Table 6-3. This might be explained by the impact of the variation of the rent-free period in Taipei.

Finally, the majority of the significant variables are mainly demand-side variables, indicating that office rental values are driven by demand-side more than supply-side.

6.3.2.3 One-Year Lag Analysis

As it is a more accurate measure of overall return, net effective rent will be used in the rest of the analysis. One of the downsides of Equation (4) is that it neglects the time lag. Some independent variables might have an impact on the dependent variable (effective rent) with a one-year or a two-year lag. The following tests will use office net effective rent in City i at the time (t) to regress 6 different independent variables (variable i) with a one-year lag: (t-1).

Thus, the following tests will also use Equation (4) but with a one-year and a two-year lag of the independent variables. The Equation (4a) will be used to describe the one-year lag (Table 6-4) and Equation (4b) the two-year lag (Table 6-5).

Equation 4a: OLS estimation of Rent $i_t = A + B * Variables\ ji_{(t-1)}$

Equation 4b: OLS estimation of Rent $i_t = A + B * Variables\ ji_{(t-2)}$

Table 6-4: OLS estimation of Rent $i_t = A + B * Variables\ ji_{(t-1)}$

	Floor Space		GDP		Unemployment rates		Interest rates		Lending Rates		Service output	
	B	R^2	B	R^2	B	R^2	B	R^2	B	R^2	B	R^2
Singapore					**-150.215 (1.821)**	**0.232**			**45.147 (1.952)**	**0.257**		
Hong Kong	**-0.01980 (2.917)**	**0.436**										
Taipei			**-923.542 (3.023) ***	**0.454**	**169.657 (3.532)**	**0.508**						
Kuala Lumpur			**603.097 (2.213) ***	**0.292**	**-83.274 (6.614)**	**0.799**			**65.01 (2.032)**	**0.273**	**576.692 (2.196) ***	**0.549**
Bangkok							**340.956 (2.163)**	**0.298**			**-5180.659 (1.87) ***	**0.305**

*Note: Figures in parentheses are t-value; * means log value is used*

There are several interesting findings from the initial view of Table 6-4. There is at least one significant variable in each city, no matter whether the coefficient of estimated values is correctly signed or not. Each independent variable appears to be significant for office rental values at least once. Some of those significant impacts are

even stronger than the results in Table 6-3, such as changes in floor space in Hong Kong, unemployment rate and prime lending rate in Singapore, and unemployment rate in Kuala Lumpur. Finally, changes in floor space and interest rates only appear once in Hong Kong and Bangkok respectively.

In Table 6-4, unemployment rates seem to be the most common variable, appearing significant in Singapore, Taipei and Kuala Lumpur with the coefficients of determination of 23.2%, 50.8% and 79.9% respectively. The service sector output only appears in two cases, indicating that the service sector has a stronger impact on office rental value without any lag. Real GDP also appears to be significant in the cases of Taipei and Kuala Lumpur. The explanatory power of real GDP with a one-year lag in Taipei is 45.4% which is higher than real GDP without lags (34.7%). However, both estimates in Table 6-3 and Table 6-4 for Taipei are incorrectly signed. Log values show more important than normal value in the elements of real GDP and services sector output. In addition, prime lending rates also exhibit significance in Singapore and Kuala Lumpur. This might be explained by the situation of the rent review period, as the rent will be negotiated taking into account previous economic conditions, which might explain this result.

Looking at the significant variables in each city, there are two in the case of Singapore: unemployment rates and prime lending rates. Both variables have significant impacts on the office rental value for Singapore, and explain the rental values by 23.2% and 36.8% respectively, with the correct sign. Changes in floor space with a one-year lag appear to be significant in Hong Kong, with 43.6% of explanatory power with the correct sign. Interestingly, changes in floor space with a one-year lag (43.6%) show statistically more important than changes in floor space without any time lag (Table 6-3), implying that floor space variation would have a stronger impact on rental value after one year in the Hong Kong office market.

There are two significant variables in the case of Taipei, which are real GDP, and unemployment rates. Compared to the results in Table 6-3, real GDP has a stronger influence on office rental movement with a one-year lag. Although those variables have strong explanatory power in office rental movements (R^2 are all above 45%), both coefficients are incorrectly signed.

Again, Kuala Lumpur has the most number of significant variables in Table 6-4: real GDP, unemployment rates, prime lending rates and service sector output. All of the significant variables are in the correct sign. The explanatory powers of unemployment rates and service sector output are 79.9% and 54.9% respectively, which are both statistically important. Unemployment rates with a one-year lag also appears to be more important than that without lag.

Bangkok has two significant variables: interest rates and service sector output. Interest rates explain the office rental movement in Bangkok by 29.8% with the correct sign. The service sector in Bangkok appears to be significant (R^2=30.5%), but incorrectly signed.

Once again, demand-side variables are largely significant in the cases of Singapore, Taipei, Kuala Lumpur and Bangkok. The supply-side variable (changes in floor space) only appears in the case of Hong Kong, which is also the only significant variable in Hong Kong. This result is consistent with the results in Table 6-2 and Table 6-3, indicating that the demand-side variables which influence South-East Asian cities rental market differ from city to city. Unemployment rates are the most common and significant variable in Table 6-4.

Several variables with a one-year lag (Variable i_{t-1}) are more important for the office rental market than variables without any time lag. Specifically, changes in floor space in Hong Kong, real GDP in Taipei, unemployment rates in Singapore and Kuala Lumpur and prime lending rates are statistically more important with a one-year lag. In addition, most significant variables which appear in Table 6-4 also appear in Table 6-3. The significant variables for Singapore make their first appearance.

6.3.2.4 Two-Year Lag Analysis

Because there are still several significant independent variables with a one-year lag in Table 6-4, it is essential to examine them with a two-year lag (t-2), using Equation (4b). Table 6-5 exhibits the results of estimated coefficient and the R^2 statistics for

each of 6 equations for each city with a two-year lag of independent variables in the analysis.

Table 6-5: OLS estimation of Rent i_t = A + B * Variables $ji_{(t-2)}$

	Floor Space		GDP		Unemployment rates		Interest rates		Lending Rates		Service output	
	B	R^2	B	R^2	B	R^2	B	R^2	B	R^2	B	R^2
Singapore												
Hong Kong							-496.938 (2.094)	0.305	-1218.580 (4.711)	0.689		
Taipei			-411.255 (2.562) *	0.396								
Kuala Lumpur					-50.728 (3.029)	0.478	41.561 (1.917)	0.269				
Bangkok			-0.006576	0.409							-1635.210 (2.241)*	0.418

*Note: Figures in parentheses are t-value; * means log value is used*

There are fewer significant variables in Table 6-5, and none in Singapore. Real GDP and interest rates seem to be the most common variables with a two-year lag significance. Changes in floor space do not show any significant impact in any cities. Demand-side variables with a two-year lag seem to have stronger impacts on of the office rental values than supply-side variables.

Real GDP appears to be significant in Taipei and Bangkok and could explain the office rental value by 39.9% and 40.9% respectively. However, the estimated coefficients are both incorrectly signed, despite high explanatory power with a two-year lag. Interest rates also appear to be significant in Hong Kong and Kuala Lumpur, but the case of Hong Kong is incorrectly signed. Interest rates with a two-year lag can also explain the office rental movement in Kuala Lumpur by 26.9%, and 30.5% in Hong Kong; this is the first appearance of this variable in both cases.

Unemployment rates with a two-year lag only appear significant in Kuala Lumpur with the correct sign, and the explanatory power is 47.8%, which is lower than the result with a one-year lag (Table 6-4). Prime lending rate is important in the case of

Hong Kong (R^2= 68.9%). Although it is the first appearance for the Hong Kong office market, prime lending rates with a two-year lag are incorrectly signed. Service sector output is only significant in Bangkok, but with less explanatory power than the result with no time lags (Table 6-3). All significant variables in Bangkok show statistically satisfying results (exceed 40%), but all the coefficients are incorrectly signed.

From the results of Table 6-5, most significant variables have incorrect signs, except for unemployment rate and interest rate in Kuala Lumpur. This situation might be caused by the short series of data (14 observations) in this research, which results in a lack of degree of freedom. Thus, a two-year lag analysis might not be able to identify the correct relationship. As a consequence, it is not necessary to test those independent variables with a three-year lag.

Time-series data are the characteristics of trends. The results in Table 6-2, Table 6-3, Table 6-4 and Table 6-5 might be caused by spurious correlation between variables, because there is a time effect on both assessments Thus, the first difference operation will be applied to the variables in order to eliminate the time series effect.

6.3.3 Step Two Analysis – First Differences Analysis

6.3.3.1 No Time Lags Analysis

The previous analyses Equation 4, 4a, and 4b focused on establishing a pattern in the relationship between office rental value and fluctuations in economic activity across the 5 selected cities, without looking at the highly-trended time-series data. The difference between office real gross rental value and office net effective rents was explored and as a result, office net effective rents will be used in the following analysis, as it takes into account the various rent-free periods in each city. In addition, all independent variables have also been converted with one-year and two-year lags, in order to see any significant impacts on office net effective rents.

As mentioned earlier, in the sections for Table 6-2, Table 6-3, Table 6-4, and Table 6-5: the results for Equation (4, 4a, and 4b) were focused on the patterns of the independent variables with various time lags but not looking at the highly trended time-series data. To remove spurious correlations, and model the dynamic behaviour

of office rents, Equation (4) will be estimated again, but using the first difference operation, which is Equation (5):

Equation (5): OLS estimation of Δ1 Rent i_t = A +Δ1 Variables ji_t

Where Δ1 is the first difference operator; i is city i; variable j is different independent variable and t is time.

Table 6-6: OLS estimation of Δ1 Rent i_t = A +Δ1 Variables ji_t

	F.S		GDP		Unemployment rates		Interest rates		Lending Rates		Service output	
	B	R^2	B	R^2	B	R^2	B	R^2	B	R^2	B	R^2
Singapore	**-0.003024 (2.244)**	**0.314**							**58.295 (2.529)**	**0.368**		
Hong Kong	**-0.02193 (2.807)**	**0.417**										
Taipei									**112.179 (3.129)**	**0.471**		
Kuala Lumpur									**41.872 (2.359)**	**0.336**		
Bangkok			**23707.047 (2.122) ***	**0.291**			**219.640 (1.837)**	**0.235**				

*Note: Figures in parentheses are t-value; * means log value is used*

Table 6-6 shows the result of equation (5) without any lags. It demonstrates the dynamics of office rents and the dynamics of macroeconomic variables and changes in office floor space in the five cities. Obviously, the number of statistically significant variables in Table 6-6 is far less than in Table 6-3. Like Table 6-3, there is at least one significant variable in each city. Furthermore, changes in service sector output does not appear significant in any of the five cities in Table 6-6, whereas service sector output was the most common variable when Equation (4) was used. On the contrary, changes in floor space and changes in prime lending rates seem to be the most important determinants of rent behaviour in four out of five cities when using Equation (5).

The coefficients of determination (R^2) are also smaller than the values in Table 6-3. This suggests that those variables, taken individually, account for between 23.5% and

47.1% of observed variation in changes of South-East Asian office rental value. The explanatory powers of changes in floor space in Hong Kong and changes in prime lending rates in Taipei exceed 40%, indicating statistically satisfying results.

In Table 6-6, prime lending rates seem to be the main variable in 3 cities: Singapore, Taipei and Kuala Lumpur. For prime lending rates, all of the coefficients are correctly signed, and they are 36.8% in Singapore, 47.1% in Taipei and 33.6% in Kuala Lumpur. The magnitude of the estimated coefficient of prime lending rates suggests that a 1% increase in prime lending rate over a year will increase rental value around S$ 58 per square metre/per year in Singapore, NTD 112 per ping/per year in Taiwan, and RM 41 per square metre/per year in Kuala Lumpur.

Changes in floor space are significant in the cases of Singapore and Hong Kong. In both cases, the coefficients are correctly signed and there is a negative correlation between changes in office floor space and changes in office net effective rents. When variation in office floor space increases, then changes in office rent fall, and vice versa. The explanatory power for changes in floor space is 31.4% in Singapore and 41.7% in Hong Kong.

Real GDP and interest rates both appear significant in Bangkok. The coefficients also show the correct signs. Both variables could explain changes in office rental value by over 20% individually.

Looking at the significant variables in each city, there are two for Singapore and Bangkok. The variable for changes in floor space appears for the first time to be significant in Singapore. Prime lending rates also were significant in the Equation (4) with a one-year lag. For Bangkok, real GDP also appears for the first time, with a correct sign. Like Table 6-2, Table 6-3 and Table 6-4, interest rates still remain significant for Bangkok.

There is only one significant variable for Hong Kong, Taipei and Kuala Lumpur. Changes in floor space are again significant in the case of Hong Kong, as in Tables 6-3 and 6-4. This indicates that the changes in office floor space have an impact on the

Hong Kong office market, and the R^2 statistics also show a satisfactory result. Prime lending rates are the only significant variable in Taipei and Kuala Lumpur.

From the results of Table 6-6, there are more significant demand-side variables than supply-side variables. Supply-side variables seem to have an impact on the Singapore and Hong Kong office markets; whereas demand-side variables appear to be significant in Taipei, Kuala Lumpur and Bangkok. It is also worth noting that all coefficients in Table 6-6 are correctly signed, indicating that the first difference operation has successfully eliminated the effect of time.

Table 6-6 exhibits the first difference operation for each individual independent variable without considering any time lags. Thus the following tests will also use Equation (5) but with a one-year and a two-year lag of the independent variables. Equation (5a) will be used to describe the one-year lag and Equation (5b) the two-year lag.

Equation 5a: OLS estimation of $\Delta 1$ Rent $i_t = A + \Delta 1$ Variables $ji_{(t-1)}$

Equation 5b: OLS estimation of $\Delta 1$ Rent $i_t = A + \Delta 1$ Variables $ji_{(t-2)}$

6.3.3.2 One-Year Lag Analysis

Table 6-7: OLS estimation of $\Delta 1$ Rent $i_t = A + \Delta 1$ Variables $ji_{(t-1)}$

	Floor Space		GDP		Unemployment rates		Interest rates		Lending Rates		Service output	
	B	R^2	B	R^2	B	R^2	B	R^2	B	R^2	B	R^2
Singapore			9997.482 (2.752) *	0.431	-173.082 (1.874)	0.260	146.467 (2.978)	0.47	49.805 (1.930)	0.271		
Hong Kong			62777.622 (2.708) *	0.423	-1594.439 (4.569)	0.676						
Taipei			2.693 (2.009)	0.288			-70.629 (2.963)	0.468	-74.349 (4.118)	0.629		
Kuala Lumpur					-63.266 (2.926)	0.461						
Bangkok			28385.646 (2.579) *	0.399								

*Note: Figures in parentheses are t-value; * means log value is used*

Table 6-7 shows the result of Equation (5a), illustrating the dynamics of office rents and the dynamics of demand and supply variables, using a one-year lag for the independent variables. There are more significant variables in Table 6-7 than in Table 6-6. Unlike Table 6-6, changes in floor space do not appear significant for any cities.

Changes in real GDP with a one-year lag and changes in unemployment rates with a one-year lag seem to be the most common and important determinants of rental behaviour. The R^2 statistics are higher than those in Table 6-6. This suggests that those significant variables, taken individually, account for between 26.0% and 67.6% of observed variation in changes of South-East Asian office rental values.

In Table 6-7, changes in real GDP with a one-year lag seems to be the main variable in 4 of the 5 cities (Singapore, Hong Kong, Taipei, and Bangkok). All of the coefficients are correctly signed in this aspect. The coefficients of determination (R^2) range from 28.8% in Taipei to 43.1% in Singapore. Most of the cases are statistically satisfying (exceed 40%), particularly in Singapore (43.1%) and Hong Kong (42.3%), which indicates real GDP accounts for around 40% of observed variation in changes of office rental value in those cities. It is the first appearance for changes in real GDP in the Singapore, Hong Kong and Taipei equations. Changes in real GDP are significant (29.1%) without any time lag in Bangkok (Table 6-6), but this variable is more significant with a one-year lag (39.9%).

Changes in unemployment rates with a one-year lag appear to be significant in Singapore, Hong Kong and Kuala Lumpur. All estimated coefficients of changes in unemployment rates with a one-year lag are also correctly signed. The magnitude of the estimated coefficient of changes in unemployment rates with a one-year lag suggests that a 1% increase in changes in unemployment rates over a year will decrease changes in office rental value by around S$ 173 in Singapore, HK$ 1594 in Hong Kong and RM 63 in Kuala Lumpur. The explanatory power for the changes in office rental movement in this aspect varies from 26.0% in Singapore to 67.6% in Hong Kong. Changes in unemployment rates in Table 6-6 (without time lags) do not show any significant impact on the variation of office rental movements. However, changes in unemployment rates with a one-year lag has an impact in 3 cases.

Changes in interest rates with a one-year lag and changes in prime lending rates with a one–year lag are both significant in Singapore and Taipei. The estimated coefficients in Singapore are correctly signed, but those in Taipei are wrongly signed. It is also the first appearance for changes in interest rates in Singapore and Taiwan. The R^2 statistics in changes in interest rates with a one-year lag are 47.9% in Singapore and 46.8% in Taipei, indicating statistically satisfying results. Changes in prime lending rates are also significant with a one-year lag. The explanatory power is 62.9% in Taipei, though the coefficient is incorrectly signed. In terms of statistical significance and correct signing of coefficients, changes in prime lending rates without time-lags (Table 6-6) show stronger (and correctly signed) impact on changes in office rental value in Singapore and Taipei than changes in prime lending rates with a one-year lag.

There are four significant independent variables in Singapore, all of which are also correctly signed. Changes in real GDP and changes in interest rates with a one-year lag seem to have stronger explanatory power in Singapore. Moreover, changes in unemployment ratea with a one-year lag also appear significant there.

Changes in real GDP and changes in interest rates with a one-year lag also show significant impact on changes in Hong Kong's office rental movement, with correct signs. Both variables achieve more than 40% of explanatory power, especially for changes in unemployment rate with a one-year lag.

Changes in unemployment rates with a one-year lag are the only significant variable in Kuala Lumpur, which is also the first appearance of a variable for Kuala Lumpur in equation (5).

Table 6-7 shows 3 significant variables in Taipei, but changes in real GDP with a one-year lag is the only one with the correct sign.

Changes in real GDP with a one-year lag are the only significant variable in the Bangkok market with a correct sign. Changes in real GDP with a one-year lag seem

to be more important than without a time lag in Bangkok and Taipei according to the R^2 statistics.

According to the results in Table 6-7, demand-side variables are significant in all cases, and changes in floor space with a one-year lag does not show as statistically significant in any of the cities. In addition, changes in service sector output with a one-year lag do not have any significant impact on changes in office rental value in any of the cities. Table (6-7) results indicate that those demand-side variables which influence rental movement are different in each city; however, changes in real GDP with a one-year lag and changes in unemployment rate with a one-year lag seem to be commonly significant. This might be explained by the rent review period. At the rent review, the current economic situation and monetary policies may be taken into account when deciding the level of rent for the next period.

6.3.3.3 Two-Year Lag Analysis

Because there are still several significant independent variables with a one-year lag in Table 6-7, it is essential to examine them with a two-year lag (t-2), using Equation (5b) to see if there is any significant impact on office rental value. Table 6-8 exhibits the results of the estimated coefficient and the R^2 statistics for each of 6 equations for each city with a two-year lag of independent variables in the analysis.

There are far fewer significant variables in Table 6-8. Singapore, Kuala Lumpur and Bangkok do not have any significant variables to explain the variations of office rental value.

Table 6-8: OLS estimation of Δ1 Rent i_t = A +Δ1 Variables $ji_{(t-2)}$

	Floor Space		GDP		Unemployment rates		Interest rates		Lending Rates		Service output	
	B	R^2	B	R^2	B	R^2	B	R^2	B	R^2	B	R^2
Singapore												
Hong Kong	-0.01779 (2.018)	0.289							-1209.314 (3.045)	0.507		
Taipei			1.926 (3.155)	0.525			-42.915 (5.974)	0.799	-34.948 (4.039)	0.644		
Kuala Lumpur												
Bangkok												

*Note: Figures in parentheses are t-value; * means log value is used*

Regardless of the sign of estimated coefficients, changes in prime lending rates with a two-year lag seems to be important in the case of Hong Kong and Taipei. Both R^2 statistics are above 50%, but they are both incorrectly signed. Changes in interest rate with a two-year lag again appears as a significant factor in the case of Taipei, with an even higher explanatory power (79.9%) than a one-year lag. Yet again, the estimated coefficient is incorrectly signed. Changes in real GDP with a two-year lag is significant in Taipei, with a higher explanatory power (52.5%) and correct sign. This indicates that changes in real GDP with a two-year lag has a stronger impact on the variations of office rental value in Taipei. Changes in floor space with a two-year lag seems to be significant in Hong Kong. Although the explanatory power achieves 28.9%, changes in floor space without any time lag seem to have a stronger influence on changes of Hong Kong's office rental value.

Although there are three significant variables in the case of Taipei, and two in Hong Kong, there is only one significant variable with the correct sign, specifically real GDP in Taipei. This might be caused by the short period of data, which causes a lack of degree of freedom. As a consequence, the two-year lag analysis might not be identifying the correct relationship.

Owing to the lack of significant variables in Table 6-8 and the short period of time series data, it is not necessary to test the dynamics of office rental value and the independent variables with a three-year lag.

All of the previous tests took independent variables individually to regress a dependent variable (office rental value). Step three will include all independent variables in one equation in order to find the most suitable factors for office rental movement in South-East Asian cities.

6.3.4 Stepwise Regression Analysis

From the results of equations 5, 5a and 5b, it is clear that changes in service sector output without a lag, or with a one-year or two-year lag, do not have any significant impact on any cities. It might be explained by the short period of the data and the quality of the data in service sectors output. Therefore, this variable will be omitted in step three analyses.

In equation (6), high degrees of correlation between changes in real GDP, unemployment rates, interest rates and prime lending rates suggest that multicollinearity is the most likely outcome from their simultaneous inclusion. However, the relatively short span of time-series data available for this analysis made it necessary to include all the variables in the search specification and any multicollinearity between economic variables is not a key issue in developing these resulting predictive models (Giussani et al. 1993a, 1993b, d'Arcy et al. 1994, Newell et al. 1996, Chin 2003). Stepwise regression[6-1] technique will be employed. Within a 95% confidence level, all of the included variables will be put into equation (6) in order to find the best fit for the office net effective rental value in each city.

Equation 6: OLS estimation of $\Delta_1 Rent_{it} = A + \Delta_1 Demand_{jit} + \Delta_1 Supply_{Iit} + e$

6-1

Stepwise regression analysis excludes all variables that are not statistically significant according to the criteria entered into the equation. (The SPSS default criterion level for variables in the model is probability of F < = 0.05 to enter and probability of F >= 0.100 for removal). This criterion is adopted for step three analysis.

According to the results of equation 5, 5a, 5b in each city, changes in floor space, changes in real GDP, changes in unemployment rates, changes in interest rates and changes in prime lending rates without and with a one-year lag will be employed in the assessment of equation (6). The contents of each equation will be stated in the following.

Changes in floor space without lag, changes in real GDP with a one-year lag, changes in unemployment rates with a one-year lag, changes in interest rates with a one-year lag and changes in prime lending rates without a lag will be included in Singapore's equation.

$$\Delta_1 \text{Rent Singapore}_t = f(\Delta_1 \text{Floor Space}_{(t)}, \Delta_1 \text{lnReal GDP}_{(t-1)}, \Delta_1 \text{Unemployment Rate}_{(t-1)}, \Delta_1 \text{Interest Rate}_{(t-1)}, \Delta_1 \text{Prime Lending Rate}_{(t)})$$

Changes in floor space without lag, changes in real GDP with a one-year lag, changes in unemployment rate with a one-year lag, changes in interest rates without a lag and changes in prime lending rate without a lag are included in Hong Kong's equation.

$$\Delta_1 \text{Rent Hong Kong}_t = f(\Delta_1 \text{Floor Space}_{(t)}, \Delta_1 \text{lnReal GDP}_{(t-1)}, \Delta_1 \text{Unemployment Rate}_{(t-1)}, \Delta_1 \text{Interest Rate}_{(t)}, \Delta_1 \text{Prime Lending Rate}_{(t)})$$

Taipei's equation includes changes in floor space without lag, changes in real GDP with a one-year lag, changes in unemployment rate without a lag, changes in interest rates without a lag and changes in prime lending rates without a lag.

$$\Delta_1 \text{Rent Taipei}_t = f(\Delta_1 \text{Floor Space}_{(t)}, \Delta_1 \text{Real GDP}_{(t-1)}, \Delta_1 \text{Unemployment Rate}_{(t)}, \Delta_1 \text{Interest Rate}_{(t)}, \Delta_1 \text{Prime Lending Rate}_{(t)})$$

Changes in floor space without a lag, changes in real GDP without a lag, changes in unemployment rate with a one-year lag, changes in interest rate without a lag, and changes in prime lending rate without a lag appear in Kuala Lumpur's equation.

Δ_1 *Rent Kuala Lumpur* $_t = f$ (Δ_1 *Floor Space* $_{(t)}$, Δ_1 *lnReal GDP* $_{(t)}$, Δ_1 *Unemployment Rate* $_{(t-1)}$, Δ_1 *Interest Rate* $_{(t)}$, Δ_1 *Prime Lending Rate* $_{(t)}$)

Bangkok's equation includes changes in floor space without a lag, changes in real GDP with a one-year lag, changes in unemployment rate without a lag, changes in interest rate without a lag, and changes in prime lending rate without a lag.

Δ_1 *Rent Bangkok* $_t = f$ (Δ_1 *Floor Space* $_{(t)}$, Δ_1 *lnReal GDP* $_{(t-1)}$, Δ_1 *Unemployment Rate* $_{(t)}$, Δ_1 *Interest Rate* $_{(t)}$, Δ_1 *Prime Lending Rate* $_{(t)}$)

Table 6-9 exhibits annual changes in office net effective rental values in the five case studies. Five different independent variables are included in the equation. Stepwise regression is employed to find the significant variables in each city.

Table 6-9: OLS estimation of $\Delta 1$ Rent $i_t = A + \Delta 1$ Demand $ji_t + \Delta 1$ Supply li_t

	Floor Space	GDP	Unemployment rates	Interest rates	Lending Rates	Adjust R^2
	B	B	B	B	B	
Singapore				**146.467 (2.978) +**		**0.417**
Hong Kong			**-1594.439 (4.569) +**			**0.644**
Taipei					**112.179 (3.129)**	**0.423**
Kuala Lumpur			**-63.266 (2.926)+**			**0.407**
Bangkok		**28385.646 (2.575) * +**				**0.338**

*Note: Figures in parentheses are t-value; * means log value is used; + means one-year lag used*

In Table 6-9, there is one significant variable in each equation. Table 6-9 also shows that changes in floor space do not have any significant impact on office net effective rental movements in the five cities, and changes in unemployment rates with a one-year lag seems to be the most common variable, appearing in 2 cities. The impacts of multicollinearlity does not happen in Table 6-9, because there is only one significant variable in each city after stepwise regression analysis.

In Singapore, changes in interest rates with a one-year lag is significant (at 41.7%) in explaining variations of office rental movement with the correct sign. In Hong Kong, changes in unemployment rates with a one-year lag is the only significant variable, which is the same as the equation for Kuala Lumpur and both are in the correct sign. When changes in unemployment rates increase 1% in the previous year, office rental value variation will drop around HK$ 1594 per square metre/per year in Hong Kong and RM 63 per square metre/ per year in Kuala Lumpur. The R^2 statistics reach 64.4% in Hong Kong and 40.7% in Kuala Lumpur, which are statistically satisfying results. Changes in prime lending rates appears to be significant in the case of Taipei, and explains Taipei office rental movement by 42.3% with correct sign. In Bangkok, changes in real GDP with a one-year lag is the significant variable. It explains 33.8% of the variation in office rents.

Demand-side variables are largely significant in the 5 cities, according to Table 6-9. Most demand-side variables show stronger impact on the variation in office rents with a one-year lag, except in the case of Taipei. This result also shows that demand-side variables affecting office rental movements are different from city to city, but most achieve statistically satisfying results (Adjust R^2 exceeds 40%).

One common problem in economics is determining whether changes in one variable are a cause of changes in another. The Granger causality test will be employed to test the result of the Equation 6. It should be borne in mind that the amount of data used in this analysis is very limited, which will reduce the accuracy of this test. However, it is still useful to carry this test out, as it can at least give an indication as to whether Granger causality is present.

Two null hypotheses will be stated in the Granger causality test, which are:

Hypothesis 1: X_i does not Granger cause Effective $Rent_t$

Hypothesis 2: Effective $Rent_t$ does not Granger cause X_i

where Xi is changes in interest rates in Singapore; changes in unemployment rates in Hong Kong and Kuala Lumpur; changes in prime lending rates in Taipei; and changes in real GDP in Bangkok.

Table 6-10: Results of Granger Causality Test – Lag of One

	Hypothesis 1			Hypothesis 2		
	F Statistic	Probability	Accept /Reject	F Statistic	Probability	Accept /Reject
Singapore	7.2362	0.0248	Reject	0.1581	0.7000	Accept
Hong Kong	18.7948	0.0018	Reject	2.4089	0.1550	Accept
Kuala Lumpur	8.1312	0.0190	Reject	0.1856	0.6767	Accept
Taipei	9.1702	0.0142	Reject	6.7800	0.0285	Reject
Bangkok	2.5549	0.1444	Accept	0.2892	0.6037	Accept

Table 6-11: Results of Granger Causality Test – Lag of Two

	Hypothesis 1			Hypothesis 2		
	F Statistic	Probability	Accept /Reject	F Statistic	Probability	Accept /Reject
Singapore	4.3921	0.0684	Reject	0.5598	0.5985	Accept
Hong Kong	7.4961	0.0233	Reject	2.2739	0.1840	Accept
Kuala Lumpur	3.9897	0.0790	Accept	0.5506	0.6031	Accept
Taipei	11.6544	0.0085	Reject	5.7363	0.0404	Reject
Bangkok	0.2095	0.8166	Accept	0.3893	0.6934	Accept

Table 6-10 and Table 6-11 exhibit the results of the Granger causality test with a lag of one year and a lag of two years. Results of the Granger causality reject the first hypothesis and accept the second hypothesis in the case of Hong Kong in both results. Therefore it appears that Granger causality runs one-way from X_t (independent variable) to effective rent and not the other way in Hong Kong. The case of Singapore also shows similar results to Hong Kong. However, the result with a lag of two years shows weaker Granger causality than the result for a lag of one year. Therefore, the causality strength in Singapore is not as strong as in Hong Kong.

In the case of Taipei, Granger tests show strong consistent results. Both hypotheses have been rejected in both tests, indicating that Granger causality runs two-ways between changes in prime lending rate and changes in effective rent in Taipei. The results suggest that there might be mutual causation between two variables. Both

Granger causality tests accept both hypotheses in Bangkok, indicating that there is no Granger causality between two variables in Bangkok's equation.

The results in Singapore, Hong Kong, Taipei and Bangkok are consistent in both tables with different lengths of lags, indicating that results are not sensitive to the choices of lags in those four cities.

With a lag of one year in the case of Kuala Lumpur, the first hypothesis is rejected and the second hypothesis is accepted, indicating that changes in unemployment rates Granger cause the changes in effective rent, and changes in effective rent do not Granger cause the changes in unemployment rates. However, in the results for the lag of two years, both hypotheses are accepted, indicating that there is no Granger causality between effective rents and unemployment rates. This shows that the results are sensitive to the different lags chosen. Although the first hypothesis failed to pass the Granger test with a lag of two years, the result still shows as significant with a 90% confidence level, indicating that the causality is not as strong as in the case of Hong Kong.

There are a number of possible causes for this result in Kuala Lumpur. The Granger causality test is based on a linear correlation between variables, but the relationship between rental value and unemployment rate might not be linear. There might be a different variable which is actually causing the office net effective rents in Kuala Lumpur, and there might be other factors which are contemporaneously correlated with changes in unemployment rates. Those variables might not be quantified or included in the equation. The unemployment data used in this equation are country-based, which might not be able to catch the true, localised movements for Kuala Lumpur's prime office market. Finally, the relative short period of data, quality of the data and lack of degree of freedom for variables might also cause this result. As a consequence, the results for Kuala Lumpur cannot really represent strong causality between the two variables.

Unemployment rates and real GDP are proxy variables for general economic conditions. In Table 6-9, changes in unemployment rates with a one-year lag is the only independent variable appearing in two cases: Hong Kong and Kuala Lumpur.

This might be explained by past movements in the unemployment rates for both cities. Unemployment rates have been very low for Hong Kong since the late 1980s, not exceeding 4%. But, owing to the regional crisis and global recession in 2000, the unemployment rates doubled compared to the average prior to 1997. The main occupiers for office space are the service sector (such as banking, and finance) in Hong Kong (JLL 2000), so once changes in unemployment rates increase, office rental values drop. The Granger causality test confirms that there is a strong causality between the two variables in Hong Kong. By contrast, the unemployment rate in Kuala Lumpur decreased gradually from over 7% in 1988 to 3% in 1997 (before the financial crisis). The time frame also matches with the office rental growth period (property boom from late 1980s to 1997). In addition, the importance of the service sector also increased in the city of Kuala Lumpur, which would also lower the unemployment rate and increase office rental values. The equation of Kuala Lumpur does not pass the Granger causality test with a lag of two years with 95% of confidence, but still it is within the 90% confidence level. This indicates that the Granger causality between two variables is not as strong as is the case in Hong Kong and Singapore. The changes in unemployment rate variable might not be able to catch the office rental movement in Kuala Lumpur, and there might be other variables which influence office rental values in Kuala Lumpur.

Although real GDP plays a significant part in the Bangkok market, it fails the Granger causality test. Therefore, what is happening in Bangkok may be an unexplained relationship between rental change and lagged movements in the business cycle.

Interest rates are also a demand-side variable which appears in the Singapore equation. Interest rates represent the direction of monetary policy. Singapore's government has a very tight monetary policy and financial measurements. The interest rate was relatively stable prior to 1998 (between 3% and 4.5%). However, the regional and global recession in 2000 caused interest rates to be lowered in Singapore. This apparently affected office rental value. The causality test indicates that there is a causality between the two variables in Singapore, but also not as strong as the case in Hong Kong. This difference might be explained by the tighter government control and close monitoring of economic and monetary policy in Singapore, which may involve some unquantified issues.

The prime lending rate is important in Taipei's equation, and this is the main driver for financing in development. The prime lending rate has been stable in Taipei in the past, offering a good development environment. This also explains the stability of the prime office market in Taipei (The prime office rental value has been stable in the past 10 years). However, as the Granger causality test suggests that the two variables run both ways, the equation might not be telling the true story about rental movement in this analysis.

6.4 Summary

This chapter has attempted to model the relationship between macro economic activities and office rental movement in South-East Asian cities over the period 1988 to 2001. Office rental values have been tested against some indicators of economic activity which have been used in previous empirical studies. The office rental values adopted in this analysis are prime office rental values in the core CBD area. Because of significant data restrictions, the model tested the influence of five demand-side variables and one supply-side variable. Those variables are: real GDP, real interest rates, real prime lending rates, service sector output, unemployment rates and changes in office floor space.

Office markets in South-East Asia have been opening up since the late 1980s. The economic growth and office market reached a peak in the mid-1990s, followed by a drop in 1998, which also might affect the results of modelling. In terms of the cross-sectional analysis result, changes in floor space and changes in interest rates seem to be the most significant variables across the region in the whole period (1988-2001), although the coefficients of determination are low. As office rental values grew significantly from 1988 to 1998 in each city, and then dropped suddenly, the whole period of cross-sectional analysis might not be able to imply a real relationship between rental drops and demand-side variables. The first sub-period (property boom period) shows more impact from those demand-side variables, such as interest rates and prime lending rates, whereas changes in floor space have a stronger impact in the second sub-period (after the financial crisis), which could be explained by the over-supply situation in the region.

Despite the short time span covered by the data, and some deficiencies in its quality, there are still a number of interesting findings. Demand-side variables are the only significant factors in each city's equation: unemployment rates, interest rates and prime lending rates. Changes in floor space do not show any significant impact in any of the cities. This research shows some similarity to European studies where real GDP and unemployment rates (in the service sector) are the main determinants explaining office rental movements. However, interest rates and prime lending rates also appear to be significant in South-East Asian case studies. Most of the variables show as significant with a one-year lag, except the case of Taipei.

The Taipei equation shows high explanatory power but it rejects both Granger causality null hypotheses. This result suggests that there might be some spurious relationship in the equation or some hidden variables which are not included in Taipei's equation. The equation for the Bangkok office market fails to pass the Granger causality test, which suggests no causality between two variables. This result can possibly be explained by poor quality and short time series in both office market and macroeconomic data or an immature/less transparent market or both. In addition, the equation for Kuala Lumpur does not satisfy the two-year lag Granger causality test (95% confidence level), but still shows a certain level of causality. This might also be the result of poor quality and length of data or other variables which are not included in the equation. As a consequence, those markets cannot be fully modelled by quantitative methods. This part of the analysis shows that the mature markets (Hong Kong and Singapore) have better modelling results than the emergent markets (Kuala Lumpur, Taipei and Bangkok). This could be explained by the poor quality of data, poor level of property market professions, poor institutional environment or even wrong assumptions (i.e. assuming market efficiency) for the cases of the emergent markets.

The macroeconomic variables adopted in this study are all nationally-based variables, owing to the availability of the data. Hong Kong and Singapore are city-based countries, therefore, those macroeconomic data are more directly representative of the local office rental market which is being modelled, whereas the macroeconomic data for Taipei, Kuala Lumpur and Thailand are all based on national level, which might

not be able to reflect the real situation for office markets in those cities, although Taipei, Kuala Lumpur and Bangkok are all the principal cities in their respective countries. This might be a reason for the models in these cases having a lower explanatory power, and for the poorer Granger causality test results.

This analysis was hampered by the lack of consistent and comparable information for a reasonable sample size, and short periods of time coverage. This was the case for both office markets and economic data in South-East Asia, but especially for the quality of office market data. Because this was a comparative study, the same range of data had to be employed for all five cities; therefore, although more detailed data were available for Hong Kong and Singapore, they could not be used. This problem may be ameliorated by improvements in data quality in the future. In addition, there are no long-term data to test the business cycle or property cycle in some of the cases, especially Bangkok and Taipei (less mature markets). As soon as there is a more consistent, comparable and longer period of data, more sophisticated analysis could be undertaken. Owing to the property boom and crash in South-East Asia, it would be necessary to perform two analyses, one prior to 1998 and the other after 1998 followed by equation 4, 5 and 6, when data are available.

The empirical studies show mixed results for the explanatory power of the model and different significant variables. This may partly be explained by the fact that some drivers of office rental values in these South-East Asian cities cannot be quantified, and so cannot be included or shown in the model, suggesting that the quantitative model cannot fully catch the office rental movement in South-East Asia, especially in the emergent markets (Taipei, Kuala Lumpur and Bangkok). Chapter Seven examines the impacts of institutional factors on office investment markets in general and then goes on to assess the institutional environment across the five cities in order to find the "unquantified soft" factors which have impacts on office market performance.

Chapter 7 Assessment of the Institutional Environment in South-East Asia

7.1 Introduction

In Chapter 6, the relationship between economic activities and office investment markets (office rental values in this study) in the five cities was tested. Statistically speaking, office rental movements in the case studies could not be fully explained by the demand and supply equation. Compared to European studies (Giussani et al. 1993a, Giussani et al. 1993b, Gardiner et al. 1988, 1991, D'Arcy et al. 1994, Newell et al, 1996, D'Arcy et al. 1997a, D'Arcy 1997b, D'Arcy et al. 1997, Keogh et al. 1998), the results are not statistically significant. As a consequence, there might be other factors affecting office market investment markets which cannot be, or have not been quantified.

The property market operates within a broad institutional environment, which includes political, economic, social and legal elements (Keogh et al. 1999a). Office investment markets are influenced by these elements, through urban policy, economic and financial market structures, landlord and tenant law, and government policy. Looking at the status of a range of institutional factors can provide an idea of how a market works in general. Property markets will perform differently according to their institutional form and structure. D'Arcy (1998) says that "*institutional analysis is a vital supplement to the existing quantitative approach to property market analysis for investment decision-making. The institutional framework of property markets can be divided into the institutional environment, the property market as an institution and property market organisations*".

This chapter will use survey results to examine the institutional environment and factors affecting the property market in the five cities, including formal and informal elements, and identify their importance and status for each city. The importance of the institutional factors will be ranked, and then the results will be used to form a framework for comparing the institutional environments across the five cities. This analysis will show how these factors could explain why the modelling was unable to explain the outcomes.

The survey formed another section of the questionnaire used in Chapter 5 for assessing market maturity, using the same sample (see Chapter 5.1). Fifty respondents took part.

As institutional factors are not measurable in the same way as economic statistics, the survey used the same technique as was used in Chapter 5, for assessing the perception of respondents.

This chapter attempts to explain these institutional changes and their impact on office investment markets, addressing directly the institutional factors which are largely unexplained in conventional econometric and quantitative models of office markets.

7.2 Institutional Environment Analysis in the Office Market

The first part of the survey was designed to indicate the relative importance of eighteen institutional factors which are believed to have potential influence on office investment markets (Seek 1996a, 1996b, Newell et al. 1996, Lee 2001, Lim 2000, Lim et al. 2002). The results are shown in Table 7-1.

The factors listed in Table 7-1 are not included in empirical econometric modelling. They fall into five groupings. Factors in the first and second groups are perceived to have a greater impact on office investment markets, whereas factors in the third, fourth and fifth groups are perceived as being less important or unimportant in their impact on office investment markets. Generally speaking, economic/financial institutions and legal institutions are considered to be more important, whereas social and cultural institutions and most political institutions are deemed to be less influential.

Table 7-1: Institutional Factors Influencing Office Investment Markets

Criticality of Factors Influencing Office Investment Markets									
Distribution of Respondents (%) (1= unimportant, 5 = critical)									
Factors	**Unimportant (1)**	**Less Important (2)**	**Important (3)**	**Very Important (4)**	**Critical (5)**	**Mean**	**S.D.**	**Rank**	**Group**
Sound Financial/ Economic Structure	0%	2%	22%	50%	26%	4	0.76	1	
Strength and Stability of the Economy	0%	2%	30%	34%	34%	4	0.86	1	
Restrictions and Regulations on Foreign Investors	2%	2%	20%	50%	26%	3.96	0.86	3	1
Political Stability	4%	0%	44%	36%	16%	3.6	0.90	4	
Legal Regulation	0%	6%	44%	36%	14%	3.58	0.81	5	
Tax	0%	8%	40%	40%	12%	3.56	0.81	6	
Legal Framework	0%	6%	46%	38%	10%	3.52	0.76	7	
Liberalisation of Financial Markets	0%	12%	36%	40%	12%	3.52	0.86	7	
Currency Exchange Stability and Convertibility	0%	12%	42%	34%	12%	3.46	0.86	9	
Transparency of Legislative System	0%	12%	42%	36%	10%	3.44	0.84	10	2
Public Infrastructure Level	0%	14%	36%	42%	8%	3.44	0.84	10	
Level of Transparency of the Market	2%	10%	52%	32%	4%	3.26	0.78	12	3
Professional Level	0%	20%	56%	22%	2%	3.06	0.71	13	
Government Intervention	0%	22%	58%	12%	8%	3.06	0.82	13	4
Perceived Corruption Level	2%	30%	46%	12%	10%	2.98	0.96	15	
Urban Form (Planning)	2%	24%	56%	12%	6%	2.96	0.83	16	
Cultural Differences	12%	56%	24%	4%	4%	2.32	0.89	17	5

As can be seen, very few respondents answered "unimportant" for any factors, except in the case of cultural differences (mean 2.32). Overall, the aspect of cultural differences (68%) was considered the least important in terms of affecting office investment markets. From the distribution of the replies, a majority of factors were "important" or higher, particularly in the aspects of political stability (96%); currency exchange stability and convertibility (88%); restriction and regulation of foreign investors (96%); legal framework (94%); transparency of legislative system (88%);

legal regulation (94%); sound financial and economic structure (98%); the strength and stability of the economy (98%); and tax (92%). The standard deviations are low for all factors, indicating a high degree of agreement amongst the respondents.

Table 7-1 shows that sound financial and economic structure, and the strength and stability of the economy are the most significant factors. Many respondents stressed that office investment activities generally follow the trend of the economic situation closely, especially in South-East Asia, as all economic and financial institutional factors are perceived above "important". One respondent in Hong Kong said "*economic activities have a great impact on office investment activities, because services sectors have traditionally contributed to most of the economic growth in Singapore, Taipei and Hong Kong*". Another respondent in an international firm in Singapore said "*because of the lack of detailed property information data, the trend of the office investment market normally follows the strength of the local or regional activities*". This perception underpins the importance of macroeconomic factors' influences on office investment markets. In other words, office investment markets would mainly follow the trend of the regional or local economic situation in a less institutionally restrictive environment. One respondent in Singapore emphasised that "*after the financial crisis in 1997, researchers paid attention not only to the strength and stability of the economy, but also to the financial and economic structure. Many market participants believed that the financial structure was one of the main problems which caused the property market collapse in Thailand and Malaysia in 1997*". Most regional respondents supported this point of view. Past modelling work has only paid attention to the macroeconomic factors (such as real GDP, unemployment rates, and interest rates), which represent general economic strength, atmosphere and monetary policy. It has not covered any factors which represent the structure of the financial and economic markets. There are a number of possible reasons for this. Firstly, the 'quality' of market structure is a perception of investors and market participants, and it is difficult to find an objective proxy variable which could be included in existing models. Secondly, soundness of financial structures and institutional factors influences both sides of the market: business investors may be encouraged to set up new businesses in a more open and stable environment (which impacts the demand side), and property investors may be encouraged to invest in new developments (which impacts the supply side). The degree by which each type of investor may be

encouraged or discouraged is also likely to be different, particularly as institutional factors may be skewed one way or another (intentionally or unintentionally) to favour particular types of investors. These issues might explain why the results of past modelling work are disappointing, especially in emergent markets (Taipei, Kuala Lumpur and Bangkok).

The economic and financial institutional factors are those perceived by researchers to have an impact on the general economic conditions. If these factors are perceived to be more mature and more able to support investment activities, they will encourage business investors to invest in the market by opening or expanding businesses. Initially, this would tend to increase demand for space, which in turn would increase rental value in the office market (in a short term). On the other hand, property investors (including foreign developers) would recognise the shortage of the space, and supply (office floor space) would invest in new developments to meet the demand and reach a new equilibrium (in the medium and long term) (also see Appendix Fifteen).

Sound economic and financial structures and liberalisation of financial markets are believed to help reduce the risk of excessive supply of floor space and irrational development activities, such as the over-supply problems in Bangkok and Kuala Lumpur prior to 1997 which caused a significant drop in market value. It is not necessarily the case that more liberal markets would have permanently lower vacancy rates, as they will still follow normal business cycles. However, it is probable that more sound and open markets will experience less volatility, as warning signs of oversupply or reducing demand will tend to become apparent more quickly, so developers can take action more quickly. From the market analysis in Chapter 4 (Figures 4-3, 4-6, 4-9, 4-12, 4-15), it is clear to see that Bangkok has the highest vacancy rates with the higher volatility (40% at the peak in 1999), and rest of the cities have relatively lower vacancy rates and lower volatility especially the cases of Hong Kong and Singapore. Furthermore, Hong Kong and Singapore are the only two cases showing the property cycle.

Restrictions on foreign investors are the next most important factor. This survey shows a slightly different view from Lim et al. (2002). They found that expected

returns, internal political stability, restrictions on foreign investors and currency exchange rates are the top 4 factors which affect property investment decision-making amongst institutional investors in Singapore. Restrictions on foreign investors are in the top three in both surveys, suggesting that tightness of regulation over foreign investment is a key issue for office investment markets. This also suggests that if there were no restriction on foreign investment, general investment might be encouraged, which might also stimulate the commercial property markets. Therefore, if there are more restrictions on foreigners, business investors (businesses which rent offices) will be less willing to enter a particular market and so demand will be reduced, and therefore the rental dynamics would also be reduced in the short term. Ideally, in a mature market, restrictions on foreign investors would not be an issue, as mature markets would have less restriction. The market price would be decided purely by the demand and supply of the market. One respondent in Hong Kong mentioned that "*the domestic demand is relatively small for Hong Kong and Singapore, therefore the foreign investment activities* [7-1] *seem to be more important for those countries. In order to attract foreign investment, providing a sound institutional environment is important. Restrictions on foreign investment is one of the most important considerations for those investors*". One respondent in Singapore commented "*the main investors in the region are Chinese (regional) investors, American institutional investors and European investors; therefore, the restriction on foreign investors is seen to be extremely important. Many foreign investors are interested in how those regulations work, and the tax issues. Those factors would affect their investment decision-marking*". These legal institutional factors are also external to the existing demand and supply modelling work. In general, an environment with investment-friendly legal institutions will encourage businesses to develop and grow. Therefore, demand increases and office rental value would be upwards in the short term. In the long run, the supply side would increase to match the demand (as it takes a longer time for development to take place). The empirical modelling framework is not able to show the impact of this aspect, as it is not quantifiable, even though this is perceived to be one of the most important factors affecting office investment markets. The current models are most capable with making short-term forecasts and measuring short-term performance in the South-East Asian cities.

[7-1] Refers to business who occupy the property.

As far as risk elements are concerned, it appears that economic, financial and political risks are the most important risks that affect office investment markets. Political stability comes fourth in this survey and second in Lim et al's (2002) Singapore survey. This shows that the stability of the region's politics appears likely to affect office markets and investment decision making significantly. Many respondents stressed that political uncertainty has a significant impact on investors' demand and the risk premium for office investment markets in the region, especially in the Hong Kong and Taipei markets. This impact was demonstrated by the drop in the Hong Kong market in the late 1980s during the Tiananmen Square demonstration and massacre, and the drop in the Taipei market in 1996 during the presidential election, when China started military exercises in the Taiwan Strait. Respondents also mentioned that internal political stability within a country and regional political stability also hold a high profile in office investment markets. This factor not only influences the demand side of the market but also impacts the supply side of the market, because it tends to reduce both business and development activity because of the higher risks. Overall, political impacts also could not be shown in the empirical modelling framework, although political stability will influence an investor's attitude towards to a market.

Perceived corruption levels, urban form and cultural differences show less impact on the movements of the office investment market. Politically, economically and geographically speaking, four of the cities are within the wider Chinese community (the exception being Bangkok), which appeals more to ethnic Chinese investors from neighbouring countries than western investors (Seek 1996a, Lim et al 2002). Walker et al. (1990) mentioned that "*the large number of major businesses throughout Asia Pacific involve entrepreneurs of Chinese origin and this has facilitated the flow of overseas Chinese money being recycled from Taiwan or relocated out of Hong Kong*". This statement provides evidence of the importance of the Chinese community in South-East Asia. Overseas Chinese are one of the wealthiest and most highly mobile groups in the world. The three "*little Chinas*", Singapore, Hong Kong and Taiwan, have accumulated huge foreign reserves. They use business links as well as family and other social networks across the region in order to overcome the obstacles of corruption (Seek 1996a, 1996b). This might suggest that cultural differences and

corruption can be outweighed by other factors, or accepted by those respondents due to cultural similarities (Seek 1996a, Lim et al. 2000). Again, the impacts of social/cultural institutional factors could not be shown in the modelling studies. Although those factors are perceived as being of lesser importance, many respondents are still concerned about their impact on foreign investors' attitudes, especially in the case of Bangkok.

To sum up, all of the economic/financial and legal institutional factors are regarded as important in affecting office investment markets. On the other hand, most of the social/cultural and political institution factors are in the fourth and fifth groups which are deemed to be least important for office investment markets.

These institutional factors not only influence the perceptions of investors but also impact on the general conditions of local economic demand and supply. The existing modelling studies do not include any of these unquantified variables, which might explain the weakness of the current econometric studies. The institutional factors can have an impact on both the demand and supply side of markets. For example, restrictions on foreign investors can influence not only the demand side of the market (putting off foreign investors from setting up businesses which occupy the office floor space), but also on the supply side of the market (foreign developers). Therefore, it would be a mistake to assume that the relationship is so easily defined or quantifiable to include in an econometric model.

The next section reviews the institutional factors in each of the five cities.

7.3 Results and Findings of the Analysis for the Cities

Respondents were asked to describe their attitude towards the eighteen institutional factors on a scale of 1 (very good) to 5 (very poor) for each city (Table 7-2). Most institutional factors in Singapore and Hong Kong were scored in the range from 1.24 (for Singapore's political stability) to 2.62 (for Singapore's government intervention). This indicates that the institutional framework of the markets in those two cities was seen as very sound.

Most scores for Kuala Lumpur, Taipei and Bangkok were in the range 2.37 (Kuala Lumpur's legal framework aspect) to 3.63 (Bangkok's urban form planning aspect). Some cities show quite a good level of development for some factors, such as legal framework in Kuala Lumpur (2.57) and Taipei (2.83); however, there are also some factors which show a low degree of development, such as level of transparency of the market in Bangkok, Kuala Lumpur and Taipei (mean 3.27, 3.09 and 3.15 respectively). These numbers indicate that there is quite a diversity of levels of institutional framework among those cities. From the initial view of Table 7-2, the scores suggest that Hong Kong and Singapore are the best developed markets and the other three are less developed in terms of institutional factors. In terms of the number of respondents, Hong Kong and Singapore have the highest number of replies, indicating that knowledge about those two cities may also be more widespread (also See Chapter 5-3-2, Table 5-9).

Table 7-2: The Mean of the Institutional Factors for Each of the Cities

	Bangkok	Hong Kong	Kuala Lumpur	Singapore	Taipei
Political stability	2.83 (23)	1.70 (27)	2.50 (24)	1.24 (25)	2.95 (21)
Currency exchange stability and convertibility	3.13 (22)	1.72 (29)	2.60 (25)	1.56 (25)	2.55 (20)
Restriction and regulation of foreign investors	3.21 (19)	1.65 (26)	3.05 (20)	1.63 (24)	2.90 (21)
Legal framework	3.22 (18)	1.56 (25)	2.37 (19)	1.43 (23)	2.73 (19)
Transparency of legislative system	3.50 (18)	1.72 (25)	2.57 (19)	1.43 (23)	2.83 (18)
Legal regulation	3.35 (20)	1.64 (25)	2.76 (21)	1.57 (23)	2.72 (18)
Sound financial/economic structure (creditworthiness of the country)	3.05 (21)	1.84 (25)	2.38 (21)	1.48 (23)	2.55 (20)
Liberalisation of financial markets	2.76 (21)	1.57 (26)	3.13 (22)	1.60 (25)	2.89 (19)
The strength and stability of the economy	3.18 (22)	2.53 (26)	2.45 (22)	2.00 (24)	2.65 (20)
Level of transparency of the market	3.27 (22)	1.85 (26)	3.09 (22)	1.63 (24)	3.15 (19)
Professional level	3.05 (21)	1.62 (26)	2.73 (22)	1.67 (24)	3.05 (19)
Perceived corruption level	3.60 (20)	1.54 (26)	2.90 (20)	1.25 (24)	3.15 (20)
Government intervention	3.05 (20)	2.16 (25)	3.10 (21)	2.62 (23)	2.89 (19)
Tax	2.94 (19)	1.61 (23)	2.60 (20)	1.95 (22)	2.79 (19)
Urban form (Planning)	3.63 (21)	2.23 (26)	2.77 (22)	1.63 (24)	3.21 (19)
Public infrastructure level	3.36 (22)	1.57 (26)	2.41 (22)	1.29 (24)	2.55 (20)

Note: 1 means very good and 5 means very poor. Parenthesis shows the number of valid responses

Table 7-3: The Mean of the Perception of Different Risks for Each of the Cities:

	Currency Risk	Political Risk	Transparency Risk	Legal Regulation/ Legislation Risk	Economic/ Financial Risk
Bangkok	2.88 (26)	3.30 (27)	2.63 (27)	2.96 (27)	2.71 (28)
Hong Kong	3.92 (26)	4.00 (27)	4.14 (27)	4.25 (27)	3.44 (29)
Kuala Lumpur	3.40 (27)	3.32 (28)	2.82 (22)	3.14 (28)	3.24 (29)
Singapore	4.12 (25)	4.34 (26)	4.42 (26)	4.26 (26)	3.74 (27)
Taipei	3.37 (24)	2.96 (25)	2.95 (24)	3.45 (24)	3.44 (25)

Note: 1 means low risk and 5 means high risk. Parenthesis shows the number of valid responses

Question 12 (Table 7-3) asked the respondents to assess the different risks in the five cities. Respondents were asked to describe their attitude towards risks in each city according to their knowledge and expertise on a scale of 1 (very high risk) to 5 (very low risk).

From the initial view of Table 7-3, Singapore and Hong Kong were regarded as low risk cities in the respects of political risk, transparency risk, and legal regulation and legislation risk in both cases, and also currency risk in Singapore. The rank order for transparency risk for this survey is the same as Transparency Index published by Jones Lang LaSalle (2004) (also see Table 2-8). Most respondents mentioned that there is still some potential economic and financial risk in the region. The uncertainty of the global investment environment, the war on terror, the Iraq war, and the "China" factor (especially for Hong Kong and Taiwan) all increase uncertainty for economic and financial risk.

Bangkok appears to have the highest risk among the five cities. One local respondent pointed out that "there were many problems in Thailand before the financial crisis emerged but they have been ignored by the officials, such as transparency issues, legal issues and economic and financial structure issues. The Thai government has tried to improve its legal and financial structure since 1998. However, many investors still consider Bangkok as higher risk compared to other regional cities". However, political risk, legislative risk and transparency risk are not included in the modelling work Therefore, this risk assessment suggests that those soft variables also have impacts on office investment markets as well as the economic situation.

Kuala Lumpur does not show particularly high or low risk in most cases, except in the case of transparency risk (mean 2.82 versus a middle score of 3). Taipei is also in a similar situation, but with higher political risk and transparency risk (mean 2.96 and 2.95 respectively). Many regional respondents mentioned that transparency risk exists in many South-East Asian cities, except Hong Kong and Singapore. This indicates that those risks are considered to have an impact on the office investment markets, particularly in the emergent markets. On the other hand, economic and financial risk also seems to have impacts on office investment markets in Hong Kong and Singapore.

There are some similarities between risk elements and some of the institutional factors. For example, currency risk relates to currency exchange stability and convertibility; political risk relates to the level of political stability; legal framework/legal regulation/transparency of legislative system relates to legislative risk; transparency risk relates to the level of transparency of the market; and economic/financial risk relates to the strength and stability of the economy. Table 7-3 illustrates the risk assessment in different cities. In Question 11 (Table 7-1), respondents believed that economic and financial strength and structure are the most important factors in the office market, which directly link to economic and financial risk.

The rest of Section 7-3 will analyse the results of each institutional factor in each city to see how those factors are perceived to affect office investment markets.

Economic Institutions

Economic institutional factors are considered to be the most important group affecting office investment markets. The importance of the economic institutions not only stresses the close linkage between macroeconomic factors and office investment markets, but also highlights the importance of financial structure, liberalisation and tax issues. All of the factors in this category are in the top 10. In this section, the influence of economic institutions on office investment markets will be analysed.

7.3.1 Sound Financial and Economic Structure - Rank 1

Table 7-4: Assessment of Institutional Factors: Sound Financial and Economic Structure

Assessment of Institutional Factors Across the Five Cities							
Factor: Sound Financial/Economic Structure (Creditworthiness of the Country)							
Distribution of Responses (%)							
	Very Good (1)	**Good (2)**	**Moderate (3)**	**Poor (4)**	**Very Poor (5)**	**Mean**	**S.D.**
Bangkok	0.00%	33.33%	33.33%	28.57%	4.76%	3.05	0.92
Hong Kong	40.00%	40.00%	16.00%	4.00%	0.00%	1.84	0.85
Kuala Lumpur	9.52%	52.38%	28.57%	9.52%	0.00%	2.38	0.80
Singapore	60.87%	34.78%	0.00%	4.35%	0.00%	1.48	0.73
Taipei	15.00%	35.00%	30.00%	20.00%	0.00%	2.55	1.00

Singapore (95.65%) and Hong Kong (80%) are considered to be good or very good in this respect (mean 1.48 and 1.84). Few respondents marked Singapore and Hong Kong as poor, and those respondents who did were based in other cities in small, locally-based firms. Kuala Lumpur and Taipei are in the category of good in this aspect (mean 2.38 and 2.55 respectively). Bangkok is below moderate in this respect (mean 3.05). Standard deviations are mostly low, indicating that similar views are shared amongst respondents, except in the case of Taipei. One respondent in Hong Kong pointed out "*Taipei does offer relatively sound economic and financial structure, but the financial instruments are still limited and immature compared to the international standard, but higher than average in the whole South-East Asia region*". This might explain the diversity of the view in the aspect.

There are three different groupings for this factor according to respondents' perceptions. Singapore and Hong Kong are in the lead group with only a 0.36 mean difference ($P>0.05$; there are no significant differences between two cities, also see Appendix Sixteen). A similar situation also appears in the second group, comprising Kuala Lumpur and Taipei, with a 0.17 mean difference between the two ($P>0.05$; there are no significant differences between two cities, also see Appendix Sixteen for ANOVA analysis). There is a clear gap between each group (0.54 mean that there are

significant differences between Hong Kong and Kuala Lumpur, also see Appendix Sixteen for ANOVA analysis).

Hong Kong and Singapore both have good financial structures and stock market regulation, and both are considered to be world-class trading centres (Tse et al. 1999, Walker et al. 1990, McLeod et al. 1998). The financial structures in both cities follow western standards, which are familiar to foreign investors. As a consequence, both cities attract more risk-averse investors into their markets. There are many foreign financial institutions established in both cities (Collier Jardines 1997). Both have provided an attractive financial environment with sufficient regulation to ensure confidence but without deterring investment, creating a sophisticated image of financial responsibility (Walker et al. 1990). One respondent in an international firm in Hong Kong said "*Hong Kong is one of the most active financial markets in the world, offering substantial activities in money trading, stock trading and property trading. Its economic and financial structure is very sound and mature. The only concern for its future is whether the Chinese government will try to influence its market activity or not. Many investors believe that Shanghai is another major competitor for Hong Kong. With the cheap labour and greater domestic demand in Shanghai, Hong Kong might have to offer better services in order to attract foreign capital*". This caveat for Hong Kong was mentioned by many Chinese respondents in Hong Kong, but western respondents there did not agree. One respondent pointed out that "*Hong Kong is a completely free trade territory having a high standard of economic and financial structure for a long time. It also offers many advantages that Shanghai does not offer, such as off-shore banking, free movement of capital and a high level of labour force. All of those factors have given Hong Kong an advantage in attracting foreign investment activities, which also proved its sound financial and economic structure*". Most respondents believed that financial structure has a strong impact on the office investment markets in Hong Kong as its economic growth is mainly based on the financial and service sector.

In terms of the situation in Singapore, its financial and economic structure was also considered to be very good. Walker et al. (1990) mentioned that "*Singapore's sophisticated financial markets will dominate the South-East Asia region and be an important link in global financial dealings*". Many respondents agreed with this point

of view and pointed out that this situation might be enhanced by the good monetary and economic policies of the government, and the high standard of financial market regulation. A respondent in Singapore said "*Singapore has a very sound economic and financial structure, and so does Hong Kong. The major difference between those two cities is the attitude of the government. Singapore's government uses its public power to influence its financial market and economic policy. However, Hong Kong follows the route of free market economy with little intervention*".

The analysis suggests that Kuala Lumpur and Taipei both have relatively sound financial and economic structures. Those two cities have established their financial structures and regulations in order to attract foreign investors into their markets and encourage local investors, for example, by introducing Real Estate Investment Trusts (REITS) in Malaysia and the over the counter market (Dian-Tao Market) and proposed REITS in Taipei, so offering an increasing variety of options for investment (JLL 2003, McLeod et al. 1998). Many regional respondents, from other cities, believed that the economic and financial structure in Taiwan is good and mature; especially as Taiwan was one of the few countries which avoided the financial turmoil in 1997. However, local respondents disagreed with this view. One respondent said "*there was a local banking crisis in 2001, which revealed bad debt problems in many Taiwanese banks. From this point of view, the financial structure can only be counted as moderate or below*". They also questioned the ability of the government to solve the crisis. Those doubts might impact on Taipei's office investment market.

Since the 1997 financial crisis, Bangkok has established a more complex financial structure, which was suggested by the International Monetary Fund (IMF). However, there are existing bad debts and banking problems in the Thai financial structure which might cause uncertainty for investors (McLeod et al. 1998, Garran 1998). One respondent in an international firm said "*Non-Performing Loans (NPLs) are still a problem in many Thai banks although the level of NPL has dropped significantly. From the investors' points of view, the financial structure in Bangkok is still immature, with higher risk than the rest of the four cities. This poor financial structure has downgraded its office investment market in the past few* years". Bangkok's immature financial structure affected office investment markets significantly in 1997; therefore,

this factor is considered to be one of the most important economic institutional factors in Bangkok's office investment market.

From the results of the economic and financial structure in five cities, it is clear to see the differences among them. Although this factor is regarded as the most important determinant of office investment markets, it seems to have less influence on the office investment markets in Hong Kong and Singapore, owing to their sound economic and financial structures. On the other hand, this factor plays an important role in office investment markets in emergent markets, because of their immature and less developed financial structures, especially in the case of Bangkok.

7.3.2 The Strength and Stability of the Economy - Rank 1

Table 7-5: Assessment of Institutional Factors: The Strength and Stability of the Economy

Assessment of Institutional Factors Across the Five Cities							
Factor: The Strength and Stability of the Economy							
Distribution of Responses (%)							
	Very Good (1)	Good (2)	Moderate (3)	Poor (4)	Very Poor (5)	Mean	S.D.
Bangkok	0.00%	18.18%	50.00%	27.27%	4.55%	3.18	0.80
Hong Kong	3.85%	46.15%	42.31%	7.69%	0.00%	2.54	0.71
Kuala Lumpur	9.09%	36.36%	54.55%	0.00%	0.00%	2.46	0.67
Singapore	20.83%	58.33%	20.84%	0.00%	0.00%	2.00	0.66
Taipei	5.00%	40.00%	40.00%	15.00%	0.00%	2.65	0.81

The strength and stability of the economy is also considered as the most important determinant of the office investment market. The mean scores for strength and stability of the economy are generally higher than other factors (above 2), and none of the cities were perceived as very good in this respect. Singapore was deemed to be the most stable in this area (mean 2.00). Kuala Lumpur, Hong Kong and Taipei come next. A considerable number of respondents (31.82%) gave a poor rating to Bangkok. Many believed that the uncertain international economic environment has weakened

the regional economic situation, slowed down economic growth and damaged office investment market activity, as shown in the generally lower scores among all the cities.

Table 7-6: Assessment of Risk: Economic and Financial Risk

Assessment of Risks							
Factor: Economic/Financial Risk							
Distribution of Respondents (%)							
	Very High Risk (1)	**High Risk (2)**	**Moderate (3)**	**Low Risk (4)**	**Very Low Risk (5)**	**Mean**	**S.D.**
Bangkok	14.29%	21.43%	46.43%	14.29%	3.57%	2.71	1.01
Hong Kong	3.70%	3.70%	40.74%	48.15%	3.70%	3.44	0.80
Kuala Lumpur	0.00%	10.34%	58.62%	27.59%	3.45%	3.24	0.69
Singapore	3.70%	0.00%	29.64%	51.85%	14.81%	3.74	0.86
Taipei	4.00%	8.00%	32.00%	52.00%	4.00%	3.44	0.87

In question 10, respondents were asked to assess economic and financial risk for each city (Table 7-6). The results for question 12 (Table 7-5) can be used to confirm the consistency of replies from respondents. Most cities fell between the categories of moderate and low risk, except Bangkok, which is consistent with the results for economic strength and stability. Again, low standard deviation in most cities indicate a high degree of agreement for respondents, except in the case of Bangkok (S.D 1.01).

There is no clear gap between the five cities, and the average scores are mostly only just above moderate in the results for question 10 (Table 7-6) and 12 (Table 7-5). None of the cities was ranked as very good or very low risk in both assessments, indicating a certain degree of variation in economic situations. Both assessments show similar results, with Singapore, Kuala Lumpur, Hong Kong and Taipei all considered as moderate or low risk (good condition). Singapore is in the lead on both assessments. The differences are from 0.3 (the differences between Singapore and Hong Kong/Taipei in economic risk assessment) to 0.65 (the differences between Singapore and Taipei in the economic strength assessment; $P<0.05$; there are significant differences between two cities, also see Appendix Seventeen). This means that these cities are regarded as having similar economic strength and risk. The small differences might also be because South-East Asia is frequently considered as one big

economic region and, as such, no single country can be isolated from a regional slowdown, except China, Myanmar and Vietnam, owing to their relatively closed markets. The economies of Hong Kong and Singapore are both based on the service sector industries and others are all based on the export-oriented activities. When there is a global recession, each country will suffer different degrees of low economic growth, which further influence office investment market activities. There is a fairly big gap between Singapore and Bangkok in both assessments (1.18 in economic strength assessment and 1.03 in economic risk assessment; also see Appendix Seventeen for ANOVA analysis), meaning Bangkok was perceived as a high economic risk with low levels of economic stability and strength. Many respondents commented that the strength and stability of the economy could largely be reflected by the macroeconomic situation locally, nationally, regionally or internationally (globally).

In both assessments, the results generally fell into the fair to good range (or fair to low risk). There was a global recession after 2001, especially in Japan and USA, which are the main trading partners for the region. As a consequence, the region's economies are not as strong as in the early 1990s (Knight Frank 1997, JLL 2000, JLL 2002). A respondent in Singapore said "*since 1997, the economic growth has slowed or even gone negative in many countries in the region. While many countries started to recover, there was the September 11th attack in the US, which caused further damage of the regional recovery. In addition, China has become another favourite place for foreign investments, which has taken a certain amount of foreign capital in South-East Asia, especially in Thailand. With all these negative factors, the general economic strength remained weak in many countries. Low economic strength has damaged the office investment markets across the region*". Moreover, since the 1997 financial crisis, some economies suffered substantial depreciation of their currencies (Table 7-7), especially for the Thai Baht and Malaysian RM. Hence, general economic strength is relatively low after regional turmoil (Garran 1998, McLeod et al. 1998).

Table 7-7: Percentage of Currency Depreciation (against US dollar) in Thailand and Malaysia

	1991	1995	1998
Thai Baht/US	25.28 (100%)	25.19 (99.64%)	40 (158.23%)
Malaysia RM/US	2.72 (100%)	2.54 (93.38%)	3.7 (135.02%)

Source: Thomason BankWatch INC (Cited in Chin 1999)

Singapore, Taiwan and Hong Kong have suffered the highest unemployment rates in decades, showing the general weakness in the area (Jarvis 2003, JLL 2002). The modelling result for Hong Kong also confirms that the unemployment rate is the significant factor affecting the Hong Kong office investment market. This confirms the importance of the economic atmosphere in Hong Kong. The IT and services sectors are the main contributors to GDP growth in Singapore, Hong Kong and Taipei. The general weakness of the IT sectors globally has also made those economies suffer the lowest economic growth in decades (Knight Frank 1999, 2000, JLL 2001). A respondent from Kuala Lumpur said that "*Malaysia recovered more quickly than its neighbouring cities, owing to its oil exports and relatively higher domestic demand, but foreign investment activities remain weak in Kuala Lumpur*". Bangkok has undertaken some measures to improve its economic strength in order to reduce its economic risk; however, respondents still lack confidence in its economic strength and stability, especially in the light of recent "Nationalist" protests.

The results confirm the importance of economic strength for office markets, which is largely consistent with the modelling results, in particular in the case of Hong Kong, Singapore and Kuala Lumpur. Respondents believed that the office investment market would mainly follow the trend of macroeconomic factors in a stable economic situation. On the other hand, in an unstable economic situation, other factors would need to be considered. The results show that none of the cities are regarded as good in this respect.

7.3.3 Tax Issues - Rank 6

Table 7-8: Assessment of Institutional Factors: Tax

Assessment of Institutional Factors Across the Five Cities							
Factor: Tax							
Distribution of Responses (%)							
	Very Good (1)	Good (2)	Moderate (3)	Poor (4)	Very Poor (5)	Mean	S.D.
Bangkok	0.00%	30.00%	45.00%	15.00%	10.00%	2.95	0.78
Hong Kong	16.00%	52.00%	32.00%	0.00%	0.00%	1.61	0.78
Kuala Lumpur	0.00%	33.33%	33.33%	23.81%	9.52%	2.60	0.60
Singapore	13.04%	43.48%	34.78%	8.70%	0.00%	1.96	0.65
Taipei	0.00%	26.32%	57.89%	15.79%	0.00%	2.79	0.71

Respondents mentioned that tax is one of the major expenses in many investments and it influences the willingness of foreigners to make investments in a country. Tax ranks in the top 6 influences on office investment markets in general. Foreign investors are generally interested in lower tax regimes. Respondents were asked to assess the tax regimes in relation to office investment markets (Table 7-8).

Hong Kong was considered to have the best tax regime, followed by Singapore, Kuala Lumpur, Taipei and Bangkok. Hong Kong and Singapore were fairly close (mean 1.61 and 1.96 respectively). Kuala Lumpur, Taipei and Bangkok are all above moderate (mean 2.60, 2.79 and 2.95), indicating that all cities offer fairly competitive tax regimes.

The results fall into two distinct groups. Hong Kong and Singapore are in the first group, with Kuala Lumpur, Taipei and Bangkok in the second group. Hong Kong is in the lead, which might be explained by its simple and low tax regime. There is a 0.34 difference in mean between Hong Kong and Singapore ($P>0.05$; there are no significant differences between two cities, also see Appendix Eighteen). Singapore operates a more complicated tax system, with higher rates of tax in many respects. There are small differences within the second group. (0.35 between Kuala Lumpur and Bangkok; also see Appendix Eighteen for ANOVA analysis). The gap between

Hong Kong and Bangkok is 1.34, which shows the clear difference between the top rated city and bottom rated city in terms of the perception of their tax regimes, which creates some diversity of investment activities and decision making ($P<0.05$; there are significant differences between two cities, also see Appendix Eighteen).

Corporate Tax

Generally speaking, most of the governments in the region have long used corporate taxation as a means to achieve economic growth (Jarvis 2003). Hong Kong operates a relatively simple tax system of corporate and personal tax. Hong Kong has the lowest corporate tax in the region (incorporated entities are subject to an annual profits tax at a flat rate of 17.5% for financial year of 2003/2004) and Singapore is next. One respondent in Hong Kong said "*low tax is one of the main attractions for foreign investments in Hong Kong. The tax regime is very simple and straight forward here*". A low rate of tax has provided a favourable investment environment for Hong Kong (Walker et al. 1990). Corporation tax is levied in Singapore at a flat rate of 26% in 1997 and 22% in 2002 and 2003. Singapore has also increased the number of tax incentives for firms in order to stimulate economic activity, as has also taken place in Taiwan, Thailand and Malaysia (JLL 2003).

Non-resident companies are only taxed on profit generated in Taiwan, which is competitive by regional standards. The government also offers generous incentives to companies that invest in some target industries, such as pharmaceuticals and bio-technology (JLL 2002). Foreign companies are subject to tax at 20% on domestically generated profits. A local respondent said "*owing to other restrictions on foreign investment and the less internationalised society in Taiwan, the Taiwanese government has to offer more tax incentives in order to attract foreign investors. One of the successful examples was the high-tech science park, which has accounted for more than 33% of recent Taiwanese economic growth. However, there are not many tax incentives relating to the service sectors and property markets*".

Corporate tax is currently imposed at a flat rate of 30% in Thailand (Jarvis 2003, JLL 2002). Many respondents mentioned that the tax rate might change in the next few years, but that will depend on the status of the economic recovery. In addition, Jarvis (2003) pointed out that the tax regime might not be beneficial towards foreign

investments in the future, because protectionism and nationalism policies were widely supported in the last election in Thailand.

The corporate tax rate in Malaysia is 28% for both local and foreign owned companies. However, the government provides a wide range of incentives that reduce liabilities in order to encourage specific investment activities, especially in high-tech industries (Jarvis 2003, JLL 2002, Colliers Jardine 1997). Tax in Hong Kong, Singapore, Taiwan and Malaysia is only levied on income which was earned on-shore. Taxation is on world-wide income in Thailand.

One respondent in an international firm in Singapore said "tax regime is an important issue for foreign investments. The five cities all offer very competitive tax schemes, which might decrease the importance of the tax issues in the process of decision-making between the cities".

Property Tax

Property tax is levied on the owner of a property in Hong Kong. A flat rate of 20% of the consideration is deductible from gross rental income as a national allowance for outgoings. Government also charges 3% of the rateable value of the property, the rateable value of all properties is reviewed annually (JLL 2002, JLL 2003).

Property Tax is levied on the owner of the property in Singapore. 10% of the annual value of the property is levied to tax. In terms of foreign ownership, a 10% surcharge on annual value is levied on foreign ownership on residential and vacant land in relationship to the quantum of foreign interest. Industrial and commercial properties are exempted (JLL 2002, JLL 2003).

In Malaysia, properties within the local authorities' boundaries are required to pay an "*assessment*" tax, which can be considered as equivalent to council tax in the UK. This tax rate is calculated as a percentage of annual value. A 12% tax charge is levied on commercial properties within 36 square miles of Kuala Lumpur and a 10% tax rate is charged on commercial properties outside this area (JLL 2002, JLL 2003).

Property tax is an annual tax on all buildings and houses in Taiwan, and the rate ranges from 1.38% to 5% of the current assessed value of the property. In addition to the property tax, land tax is also payable annually and the range is from 1% to 5.5%, which is based on a comparison of the starting cumulative value set by the government and the current assessed land value (JLL 2002 and JLL 2003).

A Local Development Tax is applied to land in Thailand. The rate varies depending on the location and the value of the land. The range is from Thai Baht 0.5 to Thai Baht 400 per rai[7-2]. House and land tax is around 12% of assessment of annual rental receipts which is levied on rental properties (JLL 2002, JLL 2003).

From the responses about tax issues, Hong Kong is believed to have the most efficient and best tax scheme for the encouragement of office investment activity. This means that tax issues will not have a negative impact on the office investment market in Hong Kong. On the other hand, tax issues may have a stronger negative impact on the Singapore, Kuala Lumpur, Taipei and Bangkok office investment markets. However, how to convert tax variable into the modelling is mostly neglected in the existing modelling studies.

[7-2] 5 rai = 2 acres

7.3.4 Liberalisation of Financial Market – Rank 7

Table 7-9: Assessment of Institutional Factors: Liberalisation of Financial Markets

Assessment of Institutional Factors Across the Five Cities							
Factor: Liberalisation of Financial Markets							
	Distribution of Responses (%)						
	Very Good (1)	**Good (2)**	**Moderate (3)**	**Poor (4)**	**Very Poor (5)**	**Mean**	**S.D.**
Bangkok	4.76%	28.57%	57.14%	4.76%	4.76%	2.76	0.83
Hong Kong	57.69%	34.62%	0.00%	7.69%	0.00%	1.58	0.86
Kuala Lumpur	9.09%	0.00%	68.18%	13.64%	9.09%	3.14	0.94
Singapore	48.00%	48.00%	0.00%	4.00%	0.00%	1.60	0.71
Taipei	5.26%	31.58%	31.58%	31.58%	0.00%	2.90	0.94

The level of liberalisation of financial markets correlates with the level of financial structure. This factor is ranked as number seven in terms of importance in relation to office investment markets.

Hong Kong and Singapore are both regarded as the most liberalised in their financial markets (mean 1.58 and 1.60). Bangkok and Taipei are also in the category of good (mean 2.76 and 2.90), and Kuala Lumpur was seen as relatively poor in this aspect (mean 3.14).

This result is consistent with the Report of Economic Freedom Report (2003), which evaluated the level of economic freedom among 126 economies. The analysis shows that Hong Kong is the best in the world in terms of economic freedom (Table 7-10).

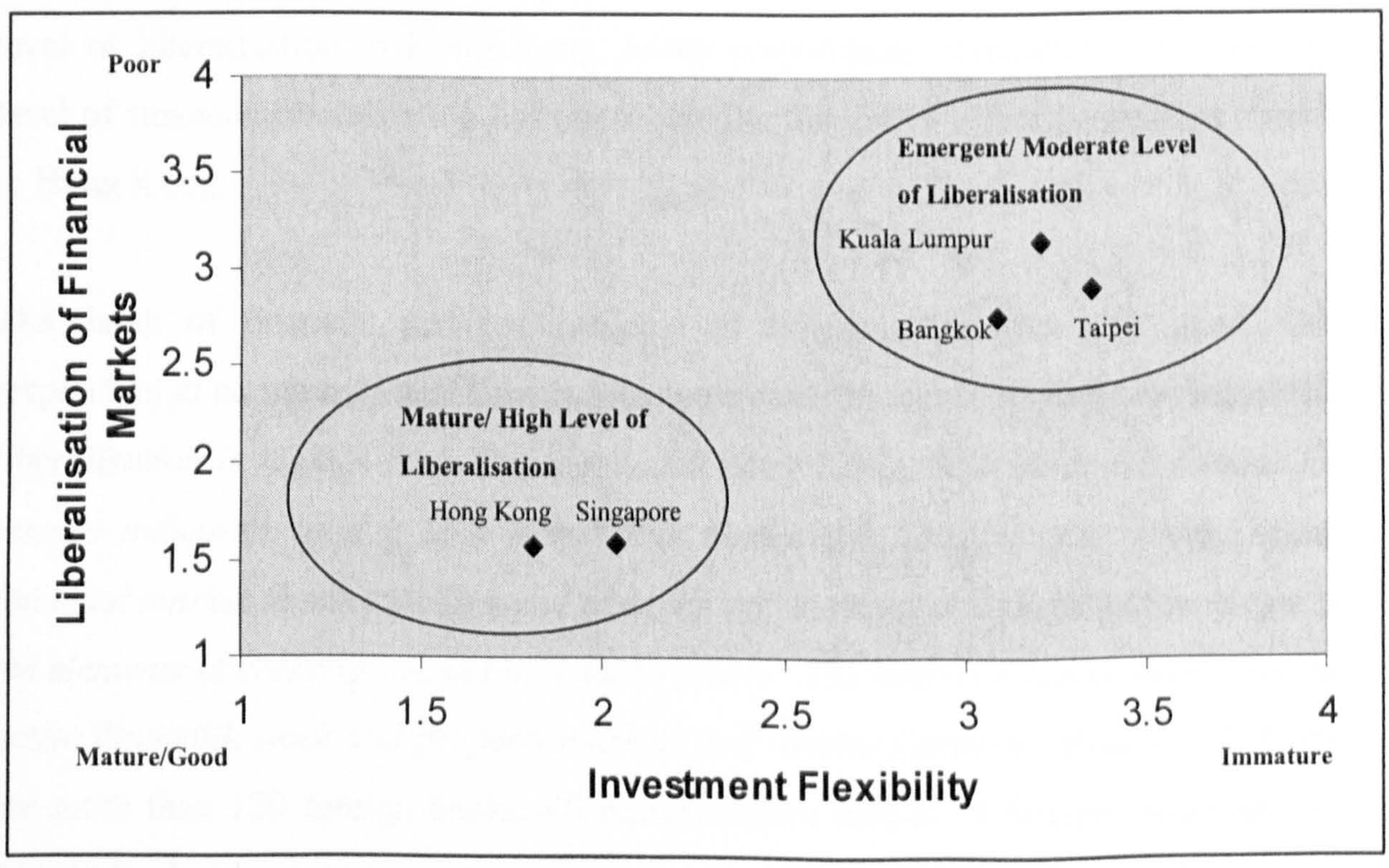
Table 7-10: Economic Freedom Rating Summary

	Hong Kong	**Singapore**	**Taiwan**	**Thailand**	**Malaysia**
Rating (Ranking)	8.6 (1)	8.5 (2)	7.1 (26)	6.7 (44)	6.4 (60)

Source: Gwartnet J. et al. (2003)

There are two grouping in Table 7-9. Hong Kong and Singapore are in the first group with very minor differences between them (0.03 difference in mean; P>0.05; there are no significant differences between two cities, also see Appendix Nineteen). Both cities are perceived as very liberalised and almost at the same level. The second group comprises Bangkok, Taipei and Kuala Lumpur. There is a clear gap (1.56) between Hong Kong and Kuala Lumpur (P<0.05; there are significant differences between two cities, also see Appendix Nineteen). This suggests that there are perceived to be some constraints on financial markets in the second group. This analysis confirms that there is a positive correlation between investment flexibility and level of the liberalisation of financial markets (Figure 7-1, also see Appendix Twenty for cluster analysis).

Figure 7-1: Correlation between Investment Flexibility and Level of Liberalisation of the Financial Markets



Hong Kong and Singapore are world leading financial centres and the level of liberalisation of their financial markets is high, with sound and sophisticated systems (Walker et al. 1990, Tse 1997, Tse et al. 1999). Both cities have long been the financial centres for the region and major offshore banking centres (Walker et al. 1991, Colliers Jardine 1997, Jarvis 2003). An important factor might be the presence of free trade ports, and Hong Kong and Singapore both have largely deregulated financial sectors where foreign investors can borrow short-term or long-term funds or

raise capital though stock markets. There are no limitations on the proportion of foreign equity, which also attracts capital into the office markets (Schultz 1990, Colliers Jardine 1997, JLL 2003, Walker et al. 1991).

Hong Kong is one of the world's largest banking centres and foreign exchange markets (Walker et al. 1990). As such, the financial, property and business services sectors contributed around 27% of GDP in 1997 (JLL 2000, Colliers Jardine 1997). 85 of the top 100 banks in the world are represented in Hong Kong and over 150 representative offices for foreign banks and over 200 foreign bank subsidiaries or securities companies. The Hong Kong Futures Exchange operates five markets, including the Hang Seng Futures Index. The Chinese Gold and Silver Exchange Society also operate one of the four largest gold bullion markets in the world (Walker et al. 1990, Colliers Jardine 1997). All of these financial activities reflect the high level of liberalisation in Hong Kong. Many respondents commented that the high level of financial liberalisation has contributed to the active office investment market in Hong Kong.

The depth of financial services available in Singapore is also very good. One respondent at an international firm in Singapore said "*the level of the financial market liberalisation is high in both Singapore and Hong Kong. Both cities are famous for service industries, and it also means that both cities have to offer a very sound financial market to meet the demand from the service sectors. Liberalisation is one of the elements of creating sound financial structure. The evidence can be seen from the active financial, stock and property markets and various financial institutions*". There are more than 120 foreign banks, 40 representative offices of foreign banks and 95 foreign bank subsidiaries or securities companies operating in Singapore. Walker et al. (1991) also mentioned that "*The Singapore International Monetary Exchange has operated since 1984 and has become the second largest in Asia after Tokyo*"; Singapore made an early start in liberalising its financial markets in the region. In Singapore, foreign investors can borrow short-term and long-term funds through the banking and financial system. Funding can be also raised through the Singapore Stock Exchange with certain requirements (Schultz 1990, Lim et al. 2000). In 1999, foreign banks were allowed to operate in the same way as domestic banks for the first time since 1971. The Monetary Authority of Singapore (MAS) reformed its licensing

system and gave out four new Qualifying Full Bank (QFB) licenses to current foreign banks (Jarvis 2003). Respondents believed that there will be more foreign banks which will be upgraded to QFB status in the near future. A local respondent said that the "*domestic banking market might be fully opened to foreign banks around 2004 or 2005, like Hong Kong. This action would further liberalise the financial market in Singapore*". Another respondent said "*Hong Kong's level of financial market liberalisation is still one of the highest in the world. The major difference between Singapore and Hong Kong's financial market is that Singapore's government has more control over its financial markets than Hong Kong, which has reduced the chance of speculative activities in Singapore*". Many respondents mentioned that the level of liberalisation in financial sectors in Singapore also increased the value of the office investment markets in the past compared to its neighbouring cities.

"*Land and property are the main collateral for lending in Thailand, but the banking system was relatively unsophisticated and simply looked at capital values, with little attention to cash flow and the borrower's ability to service the debt*" (Brett 2002). This statement summarises the problem with Thailand's property and banking industries. Financial capital movements were subject to extensive control prior to 1990, and these controls were greatly relaxed during the early 1990s. Because of the late start of industrialisation compared to other cities in the region, Bangkok's financial system and liberalisation are not seen as well developed. The entry and exit of foreign funds became easier in Thailand in the early 1990s, which made Bangkok a relatively liberalised city in financial terms (McLeod et al. 1998). One respondent in Bangkok said "the liberalisation process brought substantial foreign funds and capital into Thailand which created the great economic growth in 1990s. However, the lack of control in banking sectors and loose control of the Bank of Thailand caused the disaster in its financial system and markets in 1997. As a consequence, Bangkok can be regarded as a liberalised mess". In Bangkok, the availability of business finance was improving in the mid-1990s but underdeveloped capital markets and restricted choice of off-market property vehicles formed institutional constraints (Armitage 1996). The financial sector remains very weak since the financial crisis, because of the high level of NPLs and poor banking regulations. Almost 50% of all banks loans in Thailand are non-performing loans and more than 70% (around US$ 50 billion) of those NPLs are concentrated on the property, manufacturing and retail sectors. In

addition, the frequent changes in government have created some instability in its financial environment (McLeod et al. 1998, Jarvis 2003). Therefore, it is necessary for significant financial restructuring to occur. One respondent in an international firm in Bangkok mentioned that "it will take a long time for Thailand to reach a completed liberalised regulated financial environment, because of the current currency status, political corruption and enforcement of the law issues". In terms of foreign borrowing, an approval from the Bank of Thailand (BOT) is required if the amount is more than 50 million Baht (around US$1.04 million) (Jarvis 2003). Another local respondent said "financing and borrowing money for foreign companies in Bangkok is still not as liberalised as Hong Kong and Singapore, as the inter-bank transactions can be slow and troublesome. In addition, the concept of "protectionism" might cause further barriers on foreign corporations borrowing in the near future".

Taipei is in fourth place. This might be explained by the fact that its stock market and financial markets were only established in the mid 1980s. McLeod et al. (1998) mentioned that "*Financial liberalisation has been in progress in Taiwan in the past 15 years... The government proceeded with the reduction of tariffs. Interest rates, the exchange rate and capital account liberalisation then followed in succession*". The institutional system of property finance is underdeveloped in Taiwan, because there is no secondary mortgage market and no real estate securitisation vehicles such as REITs (Chang et al. 1999)[7-3]. In terms of liberalisation, there are still some limitations on trading and foreign investment there. For example, foreign investment companies generally take out short-term loans from foreign banks, while long term borrowing is restricted. Raising funds through the Taipei Stock Exchange was highly restricted until the early 1990s (Schultz 1990, Colliers Jardine 1997), despite the active trading environment. Although there is a relatively active stock market in Taiwan, foreign investors were not permitted to participate till 1991 (also See Section 7.3.6). The banking industry was strictly controlled by the government in direct or indirect ways before 1980. Since the new banking law came into effect in 1989, the banking industry has become more liberalised in many aspects. There were 15 new private banks licensed in the early 1990s, and also foreign banks are allowed to operate in Taiwan (Jarvis 2003). One local respondent said "*because of competition between*

[7-3] Taiwan has passes the regulation of REITS in 2003

banks, non-performing loans (NPL) reached a very high level in 2000. This has caused significant structure problems in the banking sector".

In Malaysia, the banking system is relatively regulated but liberalisation is proceeding. The banking sector has improved since the 1997 financial crisis, but the process was hampered by political interference and even ethnic rivalries notably between the Chinese and Malay communities (Han et al. 1995, Colliers Jardine 1997, Jarvis 2003). In Kuala Lumpur, foreign business finance is available through local banks, but the government Central Bank's permission is required if the amount and the length of the loan is significant. Foreign business funds can also be raised on the Kuala Lumpur Stock Exchange. However, there are no 100% foreign investment companies in Kuala Lumpur. Most of the foreign businesses are joint-ventures with local residents. In the mid 1990s, an options and futures exchange opened in Kuala Lumpur, demonstrating the growing sophistication of Malaysian financial markets (McLeod et al. 1998). Since the crisis, the government has been monitoring financial intermediaries. For example, financial institutions which provide financing for property development must update their valuation reports on a frequent basis over the financing period to reflect market conditions (Keogh et al. 1999). One local respondent mentioned that "*lending activities might still be influenced by political issues in Malaysia, such as big development scheme financing and mortgage issues*". Many respondents believed that there are some informal links between banking sectors and politicians and they perceived the level of the financial market liberalisation as immature and restricted.

Office investment markets are perceived to be sensitive to the level of financial market liberalisation. In more liberal countries (in terms of financial markets), investment activities would be less restricted, such as in Hong Kong and Singapore. In less liberal countries, investment activities are restricted. Thus, this factor should be taken into account for office investment decision-making.

7.3.5 Currency Exchange Stability and Convertibility – Rank 9

Table 7-11: Assessment of Institutional Factors: Liberalisation of Financial Markets

Assessment of Institutional Factors Across the Five Cities							
Factor: Currency Exchange Stability and Convertibility							
Distribution of Responses (%)							
	Very Good (1)	Good (2)	Moderate (3)	Poor (4)	Very Poor (5)	Mean	S.D.
Bangkok	0.00%	27.27%	45.45%	13.64%	13.64%	3.14	0.99
Hong Kong	41.38%	48.28%	6.90%	3.44%	0.00%	1.72	0.75
Kuala Lumpur	8.00%	44.00%	32.00%	12.00%	4.00%	2.60	0.96
Singapore	52.00%	44.00%	0.00%	4.00%	0.00%	1.56	0.71
Taipei	0.00%	60.00%	25.00%	15.00%	0.00%	2.55	0.76

Table 7-11 shows that Singapore dollars (96.00%) and Hong Kong dollars (89.66%) were recognised as the most stable and convertible currencies (mean 1.56 and 1.72). New Taiwanese dollars (60%) and Malaysian RM (52%) were both considered to have reasonably good currency stability and convertibility (mean 2.55 and 2.66). The Thai Baht appears to be the least convertible and stable currency (mean 3.14). Many respondents mentioned that they are still worried about the strength of the Thai Baht after the crisis in 1997. A few respondents mentioned that the currency peg of the Malaysian RM to the US dollar has decreased its convertibility, and so they marked it as poor.

Table 7-12: Assessment of Risk: Currency Risk

Assessment of Different Risks							
Factor: Currency Risk							
Distribution of Respondents (%)							
	Very High Risk (1)	**High Risk (2)**	**Moderate (3)**	**Low Risk (4)**	**Very Low Risk (5)**	**Mean**	**S.D.**
Bangkok	0.00%	38.46%	38.46%	19.23%	3.85%	2.89	0.86
Hong Kong	0.00%	7.69%	15.38%	53.85%	23.08%	3.92	0.84
Kuala Lumpur	0.00%	11.11%	44.44%	37.04%	7.41%	3.41	0.80
Singapore	4.00%	4.00%	8.00%	44.00%	40.00%	4.12	1.01
Taipei	0.00%	8.33%	50.00%	37.50%	4.17%	3.38	0.71

In terms of currency risk, the Singapore dollar has the lowest risk (mean 4.12). The Hong Kong dollar comes in second place with relatively low currency risk (mean 3.92). The Malaysian RM and the New Taiwanese dollar are also in the category of low currency risk (mean 3.41 and 3.38). The Thai Baht again is seen having the highest risk with a mean score of 2.89 (Table 7-12). Most respondents pointed out that the highly depreciated Thai Baht retained a certain level of risk in convertibility and depreciation because of the unclear future of Thailand's economic situation. The depreciation of the Thai Baht and the Malaysian RM in 1997 has shown strong impact on the values of the office investment market.

The five currencies can be divided into three groups: the Singapore Dollar and Hong Kong Dollar in the first group; the New Taiwanese Dollar and the Malaysian RM in the second; and the Thai Baht in the third group. The results show that the currencies in the first group are seen as very low risk with high convertibility and stability. The gaps between the Singapore Dollar and the Hong Kong Dollar are small (0.16 and 0.20 in both assessments; $P>0.05$; there are no significant differences between two cities, also see Appendix Twenty One). There is a clear gap between the first group and second group. The New Taiwanese Dollar and Malaysian RM are seen as being fairly stable, tending towards a low risk. There is a significant gap between the Singapore Dollar and the Thai Baht (1.57 in currency stability and 1.24 in currency risk; $P<0.05$; there are significant differences between two cities, also see Appendix Twenty One).

Currencies of all five cities are pegged to the US dollar, but using different methods. For example, the Singapore and Taiwan governments manage their currencies within a flexible band against a trade-weighted basket of currencies (Colliers Jardine 1997, Delhais 1998, McLeod et al. 1998). Respondents mentioned that the five governments have intervened to ensure their currencies' stability when their currencies have depreciated or appreciated over certain limits, especially the Hong Kong, Singapore and Taiwanese governments.

Singapore dollars and Hong Kong dollars are considered the best in terms of their exchange stability and convertibility. This might be because they are widely accepted as international currencies, and can be traded on international financial markets. As a consequence, the liquidity of those two currencies is very high, reducing currency risk. One respondent said "*there are very active and stable currency markets in Hong Kong and Singapore, which have also reduced currency risk for both currencies*". Singapore has huge domestic savings; foreign reserves and a sound economic structure (also see section 7.3.1). From 1st June 1978, all foreign exchange controls were removed. Since then, foreign investment companies have been able freely to repatriate capital and profits. There are no exchange controls for any payments, remittances or capital transfers in any currency and to any country, which is the same as Hong Kong (Colliers Jardine 1997, JLL 2002, Jarvis 2003). The Singapore dollar is one of the most stable currencies in the region, due to low debt service ratio and one of the world's highest gross foreign reserves, which is around US$ 80 billion (Jarvis 2003). The Monetary Authority of Singapore (MAS) leads the Singaporean monetary policy, which takes defensive action against speculation and provides a stable exchange rate regime (Keogh et al. 1999, Delhaise 1998, Jarvis 2003). In Hong Kong, there is no restriction on currency trading or international movement of funds, and that is why the Hong Kong Dollar suffered from speculative activity in 1997 and 1998, which caused HKD depreciation (Jarvis 2003). This may have brought about the respondents' perceptions of higher risk than for the Singapore Dollar. Many respondents mentioned that stable exchange regimes are very important to small city states dependent on international trade, such as Singapore and Hong Kong. One respondent in Hong Kong also said "*Hong Kong is very free in many aspects, but Singapore is also fairly free, but with some government controls. The differences*

might make Hong Kong more vulnerable than Singapore to speculative activities, and increase the threat of Hong Kong Dollar depreciation".

Taiwan has had a floating currency exchange rate policy, but within certain levels, since the 1980s (Colliers Jardine 1997). The New Taiwanese Dollar (NTD) is not yet freely convertible in world foreign exchange markets. However, several measures were introduced as steps towards this goal, such as allowing non-residents to open local bank accounts and allowing NTDs to be used in currency swap transactions by banks. Taiwan has the 3rd largest foreign reserves in the world, which also decreases its currency risk (per capita gross foreign reserves). Taiwanese dollars are not currently recognised as an international currency, thus its convertibility is not as convenient as the Hong Kong, Singapore and Malaysian currencies. Many local respondents stated that the government has not intervened in the market very often, except in exceptional circumstances when the currency has been significantly over- or undervalued. For example, the government used its power to stop the NTD free-falling in 2001. One respondent said that "*its stability is mainly due to the general economic climate in Taiwan and in the US, as the New Taiwanese dollar is closely related to the movement of the US dollar*".

When the 1997 financial crisis occurred, the Malaysian currency, the Ringgit (RM), which had like other Asian currencies been pegged to the US dollar, began floating. This caused it to depreciate significantly. In 1998, the Malaysian government once again set the RM at a fixed rate against the US dollar (a rate of RM 3.8 to US$ 1.00) (Asian Development Bank 2000). This action (currency peg) has halted the speculation of currency swapping, and also stabilised the currency value in the business environment (JLL 2002). The level of the RM was set at 50% of its pre-crisis level, which allowed low interest rates, encouraged borrowing, and export-oriented activities (Jarvis 2003). Therefore, its currency risk is now relatively low. However, one respondent in Singapore also mentioned that "*uncertainty might be caused in the future if this pegging is removed; because Malaysia does not have large foreign reserves like Singapore or Taiwan to protect its currency*". Respondents believed that the current currency policy is not likely to change in the near future, unless another regional crisis emerges, such as an appreciation of the Chinese currency (the Yuan). This low rate of pegging also increased the cost of import activities, which might

decrease foreign exchange earnings, and created some risk as the US dollar drifted upward in 2001, which might constrain its export-oriented activities (Jarvis 2003).

After 1997, the Thai Baht started to come under pressure by speculators who sold their holdings. Investors began to feel insecure about their exposure to the Thai currency. As a consequence, many investors sold it, which made the Baht depreciate significantly. Respondents stressed that continuously low interest rates, slow economic growth and the high level of government debt have damaged the stability of Thai Baht in the past few years. As a consequence, currency risk was high in Thailand. Since 1999, the Thai government has tried to stabilise its currency, with help from the IMF (International Monetary Fund), but the Thai baht still continued its poor performance. The perception of its currency risk still remains fair to high risk according to the respondents. The Thai Baht has become very volatile since 1997 and at one point it depreciated over 70% during the financial crisis. Since the financial crisis, the baht has depreciated by over 33% and was down 15% in 2000 (Jarvis 2003, Delhaise 1998, Chin 1999). One respondent in an international firm in Singapore said "*Non-performing loans and asset redemption would also increase its currency risk as many investors still do not consider Thailand as a stable country in terms of currency movements*". The other local respondent also mentioned that "*the drifting government policy is another risk element for the Thai Baht. The unclear financial policy will only increase currency risk*".

This analysis suggests that currency stability has stronger impacts on office investment markets in emergent markets, especially Bangkok. The currencies of Hong Kong and Singapore are more stable and low risk, therefore, this factor has less impact in those cases.

Legal Institutions

There are four legal institutions listed in the analysis. All of the legal institution factors are considered to be important and are also listed in the top 10 factors, especially the element of restrictions on foreign investors.

Generally speaking, legal institutions affect the office investment markets in many ways, such as the ownership of property, the consistency of the legal framework and the transparency of the legislation system. If the market has sound legal institutions, the office investment market would not be influenced by those regulations, and should predominately be influenced by the factors of demand and supply. By contrast, poor legal institutions would impact on the office investment market, in addition to demand and supply.

This section will analyse the four legal institutional factors in five cities.

7.3.6 Restriction & Regulation of Foreign Investors – Rank 3

Table 7-13: Assessment of Institutional Factors: Restriction & Regulation of Foreign Investors

Assessment of Institutional Factors Across the Five Cities							
Factor: Restriction & Regulation of Foreign Investors							
Distribution of Responses (%)							
	Very Good (1)	Good (2)	Moderate (3)	Poor (4)	Very Poor (5)	Mean	S.D.
Bangkok	0.00%	15.79%	52.63%	26.32%	5.26%	3.21	0.79
Hong Kong	61.54%	23.08%	7.69%	3.85%	3.85%	1.65	1.06
Kuala Lumpur	0.00%	15.00%	65.00%	20.00%	0.00%	3.05	0.60
Singapore	54.17%	37.50%	0.00%	8.33%	0.00%	1.63	0.88
Taipei	0.00%	42.86%	33.33%	14.29%	9.52%	2.90	1.00

In terms of restriction and regulation of foreign investors, most of the respondents considered that Singapore (91.67%) and Hong Kong (84.62) have a good level (mean 1.63 and 1.65). Relatively high standard deviations in Hong Kong and Singapore (S.D. 1.06 and 1.00) indicate moderately varying views in this respect. This is caused by a few respondents who compared those cities with western standards, especially for Singapore. Taipei is considered to be above moderate (mean 2.90), but Kuala Lumpur and Bangkok are regarded as below moderate (mean 3.05 and 3.21 respectively), with a high level of agreement among respondents for both cities (S.D. 0.60 and 0.79 respectively).

One respondent in an international firm in Singapore said "*there are great differences on the restrictions on foreign investors among those five cities. Hong Kong and Singapore are considered to be model cities of free-trade activities. On the other hand, there are many restrictions on foreign investments in the other three, such as the ownership of the property, stock trading, financing, and operating businesses. Those barriers would only restrict the willingness of foreign investment and property market activity*" (also see Appendix Twenty Two for ANOVA analysis).

In terms of foreign investment, Hong Kong does not require any form of government review, but all businesses need to obtain a "*Business Registration Certificate*" (JLL 2003). One respondent in Hong Kong said "*there is plenty of freedom to do investment in Hong Kong. There are no differences between local business and foreign business, which also means there are no further restrictions on foreign investment activities in Hong Kong*". Many respondents agreed with this view. They also regarded this factor as one of the most important, contributing to the high economic growth in the 1990s, which attracted much foreign investment and helped to drive the property market boom. Registration of foreign investment proposals with review authorities may be required in Singapore, Taiwan, Malaysia and Thailand. This process does not apply to all foreign investment activities and different countries have different criteria for specific industries. These approval processes are very common in South-East Asian developing countries. This is because they can potentially enable a country to boost its export-oriented manufacturing industries by choosing the most beneficial industries for its economy (Armitage 1996, JLL 2002, Collier Jardines 1997, Jarvis 2003). Many respondents pointed out that Thailand, Malaysia and Taiwan have been trying to liberalise their investment environments, mainly in non-manufacturing sectors, in order to improve high-value goods export. Singapore and Hong Kong are traditionally considered to be major financial services centres, thus regulation and restriction of foreign investment is perceived as the best (i.e. the most helpful) (Tse et al.1999).

There are no existing restrictions on foreign ownership of property assets in Hong Kong and no restrictions on the ownership of commercial properties in Singapore. Yet, some restrictions apply on residential property for foreign ownership in Singapore

(Residential Property Act, JLL 2003). Both cities offer a strong business infrastructure and the most efficient governments in the region and attract substantial amounts of foreign direct investments (Hong Kong: Number 2 in Asia with USD 13,700 billion in 2002 and Singapore: Number four in Asia with USD 7700 billion in 2002)[7-4]. Although restrictions on foreign investors are considered to be one of the top five factors, many respondents believed that this factor has fewer impacts on the Hong Kong and Singapore office investment markets.

Taiwan has one of the lowest rates for foreign direct investment in East Asia (Seek 1996b, Jarvis 2003). In Taiwan, the financial, insurance and business sector has accounted for more than 18% of GDP since the mid 1990s (Colliers Jardine 1997). The government relaxed some foreign ownership restrictions in the 1990s, especially in the construction, property and financial services sectors. Moreover, the government opened the communications industry to foreign investors in 2000, which can now be up to 50% owned by foreign companies (JLL 2002). This is evidence of the deregulation of foreign participation, which has been driven by the Taiwanese application to join the World Trade Organisation (WTO). Taiwan has been a member of the WTO since 1st of January 2002. The government has had to remove some restrictions on foreign activities in order to protect foreign investment and ensure fair competition. Many respondents believed that membership of the WTO would have a positive effect on relaxing foreign investment restrictions, particularly property ownership, education and agricultural goods imports. Furthermore, the Taiwanese government wants the country to become a major "*Asia Pacific Trade and Transportation Centre*", which has also contributed to market openness towards foreign ownership. One respondent said "*There are some difficulties for promoting the idea of Asia Pacific Trade and Transportation Centre. Major problems are the barriers between Taiwan and mainland China, such as for direct transportation and direct money transfer, which might decrease the willingness for foreign investment in Taiwan*". Individual foreign investors were not allowed to participate directly in the Taiwanese stock exchange until 1996 or raise capital by issuing shares in the stock market. Since then, the maximum permitted amount of foreign ownership has been gradually raised from 15% of total issued shares in 1996 to 30% in 1998 (Colliers

[7-4] http://udn.com/news/finance/fin1/1545159.shtml

Jardine 1997, McLeod et al. 1998). Several respondents mentioned that there is still a long way to go before Taiwan becomes a major competitor to Hong Kong and Singapore, owing to its limitations on foreign investments, restricted financial structure, and the tense relationship with China. A local respondent in an international firm said "*Once the restrictions are removed fully, Taipei might be considered by foreign investors and become a major competitor in the region, or even a business operation centre for Mainland China*". Those obstacles have reduced the willingness of foreign investors to take part in Taipei's office investment market.

In Malaysia, the average foreign ownership of businesses is around 30%, and there are some industries which can be owned by foreigners up to 100%, such as export-oriented businesses, foreign fund management and infrastructure projects (Jarvis 2003, JLL 2003) The government has relaxed restrictions on foreign investors, especially on the issue of limits on foreign ownership of local ventures and land. This relaxation also applies to tariffs on imported capital. Foreign investors can hold majority control in telecommunications and new investments made in manufacturing. They also can hold up to 49% in insurance industries (Han et al. 1995, Seek 1996a, Jarvis 2003). One respondent said "*the joint-venture business is very common in Kuala Lumpur. This is meant to protect job opportunities for locals and offer the chance for locals to improve their skills to meet with the international standard*".

In Thailand, substantial foreign investment participation is subject to the "*Alien Business Law*". It is extremely difficult for foreigners, either individual or corporate, to participate in the Thai property market (Armitage 1996). Most foreign investment requires approval from the Bank of Thailand. 100% foreign ownership is possible but subject to review and approval by the Thailand Board of Investment (Armitage 1996, Seek 1996, Colliers Jardine 1997, JLL 2002). In addition, the lack of corporate and financial sector reform; the movement toward to the concept of "*protectionism*"; and inefficient bureaucratic administrative procedure and corruption are all other factors hindering foreign investment activities there (Armitage 1996, Jarvis 2003).

In terms of foreign investment incentives, the tax holiday is the most common in the region (Jarvis 2003, Colliers Jardine 1997, JLL 2003). Hong Kong's main attractions are its low personal and corporate taxation with its sophisticated business and

financial infrastructure. In Singapore, specific tax incentives have been introduced to encourage financial institutions to locate their regional offices there, which is also in the Taiwanese strategy for an "*Asian Pacific Trade and Transportation Centre*" (JLL 2003). In the past 10 years, Singapore has introduced tax inducements for companies to locate their regional headquarters there, and the Thai government has also brought in a similar programme. Many countries have offered tax concessions especially for infrastructure, bio-technology industries and high-technology investments. Malaysia, Taiwan and Thailand offer tax holidays in specific science parks for high-tech companies. Thailand also offers tax holidays in different industrial policy zones (Han et al. 1995, JLL 2003). A respondent in an international firm in Singapore said "*the main foreign investment incentive in the region is tax. Owing to the limited amount of foreign capital coming into the region, if one country introduces a new tax incentive which attracts more investment, it is frequently copied by others so they remain competitive*".

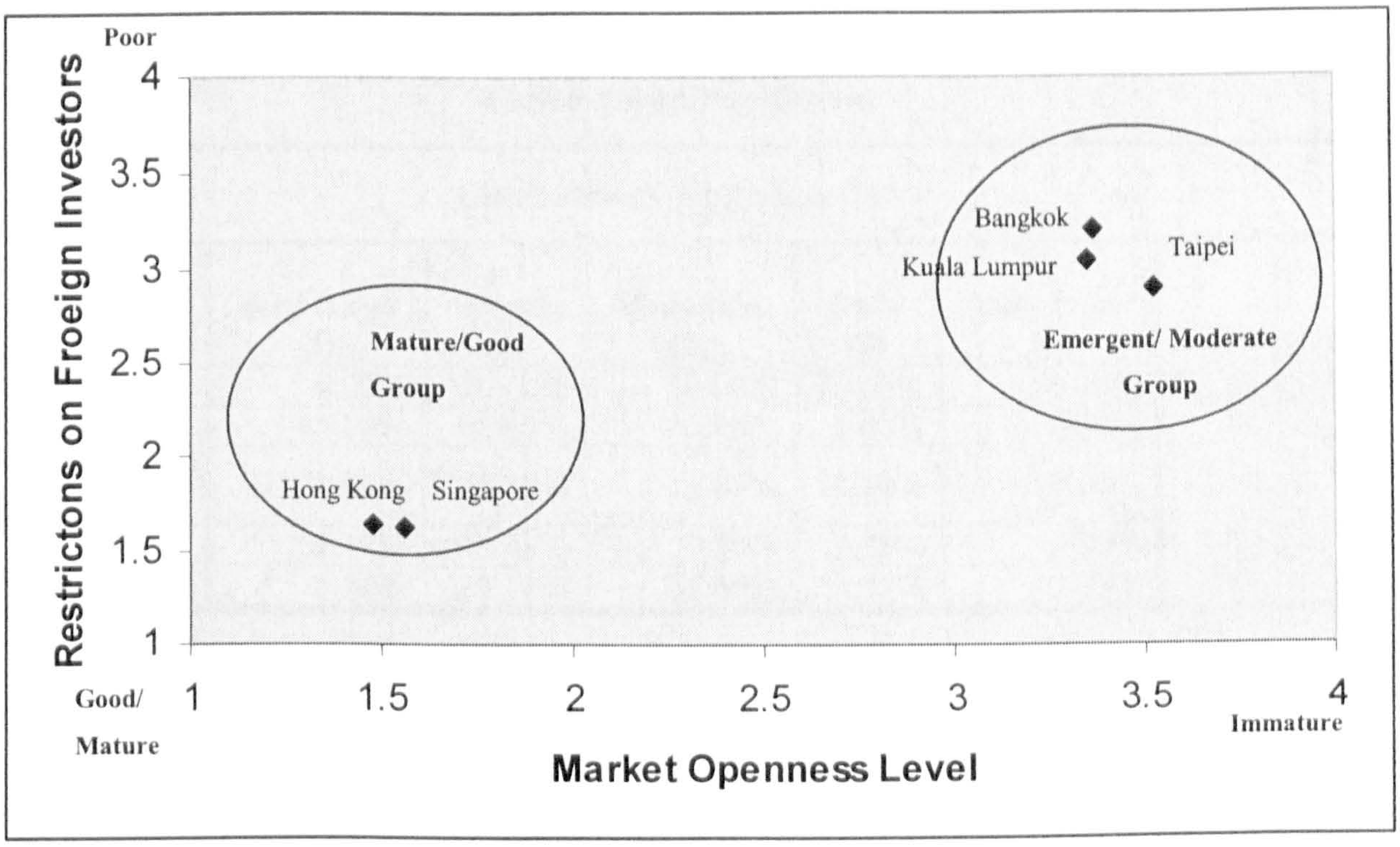
The result demonstrates that there are more restrictions in emergent cities (Kuala Lumpur, Taipei and Bangkok) than mature cities (Hong Kong and Singapore), which also suggests that this factor has stronger negative impacts on office investment markets in the emergent group than in the mature group.

In terms of the regulation of foreign investments in the property market, Hong Kong is perceived as the freest country. Foreigners may own the leasehold title to land and property, which is the only form of tenure available there (JLL 2002, JLL 2003). Singapore is almost completely open to foreign property investment, but only subject to the territory's leasehold system (JLL 2002). Taiwan's property market is fairly open, only restricting foreign ownership of key strategic resources (e.g. farm land, strategic areas, natural resources) (JLL 2002 and Land Law 2003). In Malaysia, foreign investors are allowed to buy office buildings but the acquisition must be conducted via a locally incorporated company. Foreign equity investment in the property market is possible in joint venture with a Malaysian entity. Initially, up to 60% of the shareholding can be in foreign ownership. Moreover, foreign investment in commercial property must be transacted through a locally incorporated company with 70% Malaysian and at least 30% Bumiputra (indigenous) ownership. Foreign investment in Malaysia is also subject to the approval of the Foreign Investment

Committee (FIC). This committee is intended to ensure that foreign investments follow policy guidelines and Malaysian participation is adequate (Keogh et al. 1999, JLL 2002). Since 2002, the government has relaxed several limitations on foreign ownership of property. Foreigners can now buy residential or commercial properties valued above US$ 66,000 (Jarvis 2003). In Thailand, foreign persons and companies are not allowed to hold title to land, but they are permitted to purchase leasehold titles. In addition, foreigners may only hold leasehold properties for 30 years for residential use and a maximum of 50 years for commercial purposes, in most cases (JLL 2002). Some foreign ownership restrictions were removed in 1999, allowing foreigners doing business there to lease property for commercial or industrial purposes, (JLL 2002), which, together with the recent implementation of the Thailand Property Fund has made property investment more active in Thailand (Lim 2000).

The analysis shows that there is a positive correlation between the levels of market openness (also see Chapter 5.3.1) and the levels of restrictions on foreign investors (Figure 7-2, also see Appendix Twenty Three for cluster analysis). Both assessments show that Hong Kong and Singapore are perceived as the most open markets with the fewest restrictions on foreign investment. Even though the order is a little different between these two assessments, there is still consistency between the two results.

Figure 7-2: Correlation between Market Openness and Restrictions on Foreign Investors



7.3.7 Legal Aspects: Legal Regulation (Rank 5); Framework (Rank 7); Transparency of Legislative System (Rank 10)

In terms of other legal aspects, Question 12 asked respondents to assess three different sub-groups: legal regulation, legal framework and transparency of the legislative system. Legal regulation is deemed as the fifth most important institutional factor affecting office markets, and legal framework and the transparency of legislative system come seventh and tenth, which are all considered to be important for office investment markets. Question 10 also asked respondents to evaluate the risk of legal regulation and legislation, in order to compare the results of assessments of legal aspects in Question 12.

Table 7-14: Assessment of Institutional Factors: Legal Regulation

Assessment of Institutional Factors Across the Five Cities							
Factor: Legal Regulation							
Distribution of Responses (%)							
	Very Good (1)	**Good (2)**	**Moderate (3)**	**Poor (4)**	**Very Poor (5)**	**Mean**	**S.D.**
Bangkok	0.00%	10.00%	55.00%	25.00%	10.00%	3.35	0.81
Hong Kong	44.00%	52.00%	0.00%	4.00%	0.00%	1.64	0.70
Kuala Lumpur	0.00%	38.10%	47.62%	14.29%	0.00%	2.76	0.70
Singapore	52.17%	43.48%	0.00%	4.35%	0.00%	1.56	0.73
Taipei	5.56%	27.78%	55.56%	11.11%	0.00%	2.72	0.75

In terms of legal regulation, Singapore (95.65%) and Hong Kong (96.00%) are considered to be good (mean 1.56 and 1.64) Table 7-14. Taipei and Kuala Lumpur are perceived to be in the category above moderate (mean 2.72 and 2.76), but Bangkok is regarded as poor. No one believed that legal regulations are very poor in any of the cities, except Bangkok. This might be because of the way regulation is enforced there (Armitage 1996). Standard deviations are low in all cases, indicating respondents were generally in agreement.

Table 7-15: Assessment of Institutional Factors: Legal Framework

Assessment of Institutional Factors Across the Five Cities							
Factor: Legal Framework							
Distribution of Responses (%)							
	Very Good (1)	**Good (2)**	**Moderate (3)**	**Poor (4)**	**Very Poor (5)**	**Mean**	**S.D.**
Bangkok	0.00%	16.67%	50.00%	27.78%	5.56%	3.22	0.81
Hong Kong	64.00%	20.00%	12.00%	4.00%	0.00%	1.56	0.87
Kuala Lumpur	15.79%	31.58%	52.63%	0.00%	0.00%	2.36	0.76
Singapore	65.22%	30.43%	0.00%	4.35%	0.00%	1.43	0.73
Taipei	5.26%	31.58%	47.37%	15.79%	0.00%	2.73	0.81

Singapore (65.22%) and Hong Kong (64.00%) are seen to have a very good (mean 1.43 and 1.56 respectively) legal framework (Table 7-15*)*. Again, Bangkok is the only city which has been marked as very poor in this respect.

Table 7-16: Assessment of Institutional Factors: Transparency of Legislative System

Assessment of Institutional Factors Across the Five Cities							
Factor: Transparency of Legislative System							
	Distribution of Responses (%)						
	Very Good (1)	**Good (2)**	**Moderate (3)**	**Poor (4)**	**Very Poor (5)**	**Mean**	**S.D.**
Bangkok	0.00%	5.56%	44.44%	44.44%	5.56%	3.50	0.71
Hong Kong	40.00%	52.00%	4.00%	4.00%	0.00%	1.72	0.74
Kuala Lumpur	0.00%	42.11%	57.89%	0.00%	0.00%	2.57	0.51
Singapore	65.22%	30.43%	0.00%	4.35%	0.00%	1.43	0.73
Taipei	5.56%	27.78%	44.44%	22.22%	0.00%	2.83	0.86

In terms of transparency of legislative system, Singapore (65.22%) and Hong Kong (40.00%) were again both considered to be the most transparent (mean 1.43 and 1.72 respectively). Kuala Lumpur and Taipei were deemed relatively transparent (mean 2.57 and 2.83) and Bangkok is recognised as having poor transparency (mean 3.50) and it also is the only city marked as very poor. It is notable that 50% of respondents believed that Bangkok offers poor transparency, and only 5.56% answered that it has good transparency. Responses to the transparency of the legislative system were related to the responses to the level of professionals and the level of perceived corruption questions. Figure 7-3 illustrates the correlation between the level of corruption and the level of the transparency of legislative system. It shows that those two factors have a very close linked positive relationship (also see Appendix Twenty Four for cluster analysis). Table 7-22 also exhibits the corruption level for five cities, which is mainly consistent with the legal assessments in this study.

Figure 7-3: Correlation between Corruption Level and Transparency of Legislative System

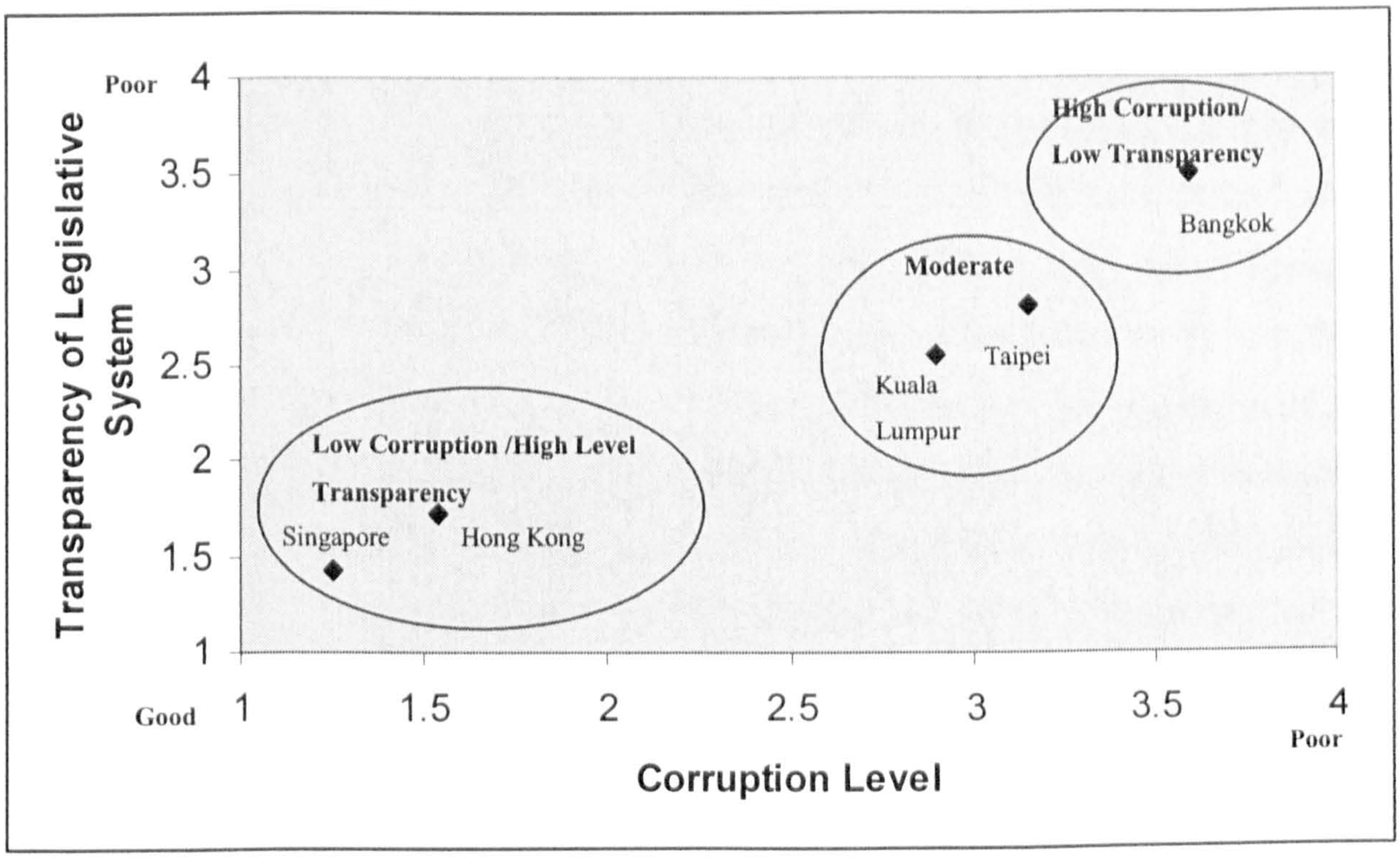


Table 7-17: Assessment of Risk: Legal Regulation and Legislative Risk

Assessment of Different Risk							
Factor: Legal Regulation and Legislation Risk							
Distribution of Respondents (%)							
	Very High Risk (1)	High Risk (2)	Moderate (3)	Low Risk (4)	Very Low Risk (5)	Mean	S.D.
Bangkok	3.70%	25.93%	48.15%	14.81%	7.41%	2.96	0.94
Hong Kong	0.00%	0.00%	11.11%	51.85%	37.04%	4.26	0.66
Kuala Lumpur	7.14%	7.14%	53.57%	28.57%	3.57%	3.14	0.89
Singapore	0.00%	0.00%	11.54%	50.00%	38.46%	4.27	0.67
Taipei	0.00%	8.33%	50.00%	29.17%	12.50%	3.46	0.83

In Question 10 (Table 7-17), respondents were asked to assess risks relating to legal regulation and the risk of legislative change. Singapore and Hong Kong were both regarded as low risk in this aspect. The majority of respondents believed that Taipei and Kuala Lumpur are above moderate and higher risk for Bangkok. Standard deviations are very low in all cases, indicating that similar views are shared by the respondents.

Tables 7-14, 7-15, 7-16, 7-17 contain the responses for legal aspects, and they all show similar results. Singapore and Hong Kong were considered to be the most developed cities in each aspect, and Bangkok was perceived as the least developed city. Taipei and Kuala Lumpur are both in the second level, both offering a relatively sound structure in all legal aspects. In the four sub-groups, Singapore is in the lead in each one, followed by Hong Kong. There are few differences in mean between Singapore and Hong Kong, from 0.01 in legal regulation and legislative risk to 0.29 in the transparency of legislative system; also see ANOVA analysis in Appendix 25, 26 and 27). Both countries are perceived to be mature and low risk with the highest transparency and the most developed legal systems. Hong Kong scored slightly higher because many respondents there had some doubts about the transparency of its legislative system. One respondent said "*there are some possibilities of the greater Chinese government influences on Hong Kong's legislative procedures and other transparency issues. For example the issue on immigration for Chinese into Hong Kong and attempts to change Hong Kong's Basic Law, those issues have shown the Chinese influence since 1997*" (Table 7-16).

Taipei and Kuala Lumpur are in 3rd or 4th places in these assessments. The gap between Kuala Lumpur and Taiwan varies from 0.04 in legal regulation to 0.36 in legal framework (also see ANOVA analysis in Appendix 25, 26 and 27). Taipei is higher for legal framework and legal regulation and legislation risk, whereas Kuala Lumpur is higher for legal framework and transparency of legislative system. Respondents perceived that Kuala Lumpur and Taipei are in fairly good condition in most legal aspects. Both governments have tried to set up sounder legal frameworks and improve their transparency in order to boost foreign investment (Walker et al. 1990, Jarvis 2003). The gap between second and third place is around 0.8 in all aspects except legal regulation (1.08). The difference between the first and second groups is not large in most legal aspects, and so the differences in legal aspects are not likely to have a major impact on decision-making between those four cities from the respondents' perceptions. Bangkok is in last place in all legal aspects and it was not seen to be either mature or transparent. The gaps between Singapore and Bangkok vary from 1.3 in legislative risk to 2.07 in transparency of the legislative system. There is also a clear gap between Bangkok and the second group, which varies from 0.28 in legal regulation to 0.63 in the transparency of the legislative system. Bangkok

is therefore perceived as far behind the other cities in all legal aspects, but especially in the transparency issue.

Seek (1996a) said *"Local laws and business practices are not easily understood by foreign investors, although many large successful local property groups have been operating very comfortably in the region for a long time, reaping astronomical profits. Informal ways are often more effective than formal ways, and local and regional players know better how to circumvent otherwise insurmountable problems*". The statement highlights the complexities of dealing with legal regulation in Asia. The legal systems in Singapore and Hong Kong are based on English legal practices. The judiciary is formally independent of the executive and the government structures are based on those in place during the colonial era, which provides a robust and adaptable political framework for both cities (Walker at al. 1990, Keogh et al. 1999). The legal systems in those cities are common law jurisdictions modelled on the UK, and confidence in this system is significant to both cities' importance as commercial centres (Walker et al. 1990). One respondent said "*many investors were concerned about the legal system in Hong Kong after 1997. However, the continuance of the legal system has reduced concerns. The legal system is fundamental for the confidence of the local people and those who do business with Hong Kong. Yet, there are still some concerns about the transparency of the legislation system and how China influences Hong Kong after 1997*". The two cities are traditional competitors in the region as financial and transport centres (Tse et al. 1999). Walker et al (1990) mentioned that Singapore and Hong Kong have a comprehensive legal and administrative framework within which the property market functions. Singapore's market is also one of the most highly regulated in the world, with the Monetary Authority of Singapore (MAS) frequently exercising its far-reaching prerogatives (Schultz 1990, Colliers Jardine 1997). Singapore and Hong Kong also exhibit the highest level of transparency in their legislative systems. Many respondents mentioned that both Singapore and Hong Kong have departments to detect corruption (Anti-Corruption Agencies) within the country and their democratic systems offer transparency of the process of legislation (Jarvis 2003). A respondent in Singapore added "*the high educated level of the public helps to improve the transparency of legislative system and procedure. High educated level would also prevent the possibilities of corruption within the parliament and the government*". All of those

factors contribute to the lower risk in their legal regulation and reduced legislative risk. Respondents also mentioned that financial markets and services sectors are key industries for Singapore and Hong Kong, and a well-regulated legal framework and high degree of transparency are necessary to ensure they continue to attract foreign investors. All of these sound legal frameworks also boost the confidence of the investors in both cities. The seventh annual Economic Freedom of the World Report (2003) mentioned that one measure that has suffered within Hong Kong's rating has been the legal structure because of intervention by the Chinese government since 1997. They recognised that this is not enough to lower Hong Kong's ranking, which has been number 1 since 1996 (Gwartney et al. 2003), but some respondents still showed their concerns about the influences of China regarding to the legislative transparency issue.

Malaysia has developed a sound legal framework since the early 1990s (Colliers Jardine 1997). However, it still has certain restrictions such as those relating to foreign investment and ownership. One respondent pointed out that "*in terms of legal aspects, Malaysia has improved significantly recently, including its transparency. The government has tried to create a sound and transparent legal environment in order to attract foreign investment. In addition, the stable leadership reduces the risk of major changes of legislative policy*". The situation is similar in Taiwan. Both countries have introduced some regulations to protect their own industries. Overall, respondents perceived them as relatively good in legal aspects. Many local respondents expressed concern over the efficiency of the Taiwanese parliament (also know as Legislative Yuan), which is notorious for delaying the legislative process. One local respondent said "*it can take years to pass a law in the Legislative Yuan if the political parties are not ready to cooperate. For example, the regulation of Chartered Surveyors waited over 10 years to be passed*". Another local respondent said that "*the transparency of process in the Legislative Yuan has improved recently. It was notorious for bribe and corruption in the past, but the situation has improved significantly since 1996*". The legal frameworks in Malaysia and Taipei are perceived to be improving, but the progress of legal regulation still play an important part for office investment markets in Kuala Lumpur and Taipei, especially for foreign investors.

Thailand has the lowest scores in all legal aspects. Higher risk also might be related to the frequent changes of government, shifts in overall policy or the perceived level of corruption in government. One local respondent said "*the low efficiency of government and high degree of corruption have created a difficult legal environment for foreign investors in Bangkok*". Armitage (1996) pointed out that an outdated and centralised administrative and legal framework with feudal overtones has also caused some problems in Thailand. Moreover, a degree of xenophobia underpins legal and tenure systems. This attitude gained support widely during the last election (Jarvis 2003). Owing to the poor perceptions of legal institutions in Bangkok, those factors are likely to have a bigger impact on Bangkok's office investment markets than those of the other cities.

To sum up, all of the legal factors are perceived as important. The legal institutional environment is considered to be sound in the cases of Hong Kong and Singapore, and have less impact on the office investment market movements. On the other hand, all of legal institutions seem to have various degrees of impact in the emergent cities, and in Bangkok they are perceived to have the biggest negative impact for its office investment market.

Political Institutions

There are three factors which belong under political institutions: political stability, government intervention, and perceived corruption level. Only political stability is considered to be important; the others are considered less important for office investment markets.

7.3.8 Assessments of Political Stability – Rank 4

Table 7-18: Assessment of Institutional Factors: Political Stability

Assessment of Institutional Factors Across the Five Cities							
Factor: Political Stability							
Distribution of Responses (%)							
	Very Good (1)	**Good (2)**	**Moderate (3)**	**Poor (4)**	**Very Poor (5)**	**Mean**	**S.D.**
Bangkok	8.70%	26.09%	39.13%	26.09%	0.00%	2.82	0.94
Hong Kong	37.04%	55.56%	7.40%	0.00%	0.00%	1.70	0.61
Kuala Lumpur	12.50%	41.67%	29.17%	16.67%	0.00%	2.50	0.93
Singapore	76.00%	24.00%	0.00%	0.00%	0.00%	1.24	0.44
Taipei	4.76%	19.05%	57.14%	14.29%	4.76%	2.95	0.86

In terms of political stability, Singapore (100%) and Hong Kong (92.60%) are regarded as very stable (mean 1.24 and 1.70). Kuala Lumpur, Bangkok, and Taipei are all rated above moderate (mean 2.50, 2.82 and 2.95 respectively). Taipei is the only city characterised as poor. More respondents answered very good for Singapore than in Hong Kong. The reason is that many respondents believed Singapore has stable leadership and stable foreign diplomacy, whereas the political uncertainty between China and Hong Kong lowered Hong Kong's score. Low standard deviations indicate a high degree of agreement among the respondents, especially for Hong Kong and Singapore (Table 7-18).

Table 7-19: Assessment of Risk: Political Risk

Assessment of Different Risk							
Factor: Political Risk							
Distribution of Respondents (%)							
	Very High Risk (1)	**High Risk (2)**	**Moderate (3)**	**Low Risk (4)**	**Very Low Risk (5)**	**Mean**	**S.D.**
Bangkok	0.00%	25.93%	29.63%	33.33%	11.11%	3.30	0.99
Hong Kong	0.00%	3.70%	11.11%	66.67%	18.52%	4.00	0.68
Kuala Lumpur	0.00%	17.86%	39.29%	35.71%	7.14%	3.32	0.86
Singapore	0.00%	0.00%	3.85%	57.69%	38.46%	4.35	0.56
Taipei	0.00%	28.00%	52.00%	16.00%	4.00%	2.96	0.79

Question 10 (see Table 7-19) asked respondents to evaluate the political risk in the range 1 (very high risk) to 5 (very low risk). The assessment of political risk will be used as a confirmation of the assessment of political stability (Table 7-18) to see whether or not the results are consistent.

Singapore (96.15%) and Hong Kong (85.19%) were still considered as low. Bangkok and Kuala Lumpur were perceived as fair, but Taipei was below moderate (mean 2.96). Low standard deviations again indicate high degree of agreement among the respondents. A few respondents in Hong Kong believed that the city is in the category of high risk because they suspect influence from the Chinese government and have doubts about the promise of 50 years without any changes. But most respondents in the region considered Hong Kong as a fairly low risk place, including some westerners in Hong Kong.

There is a clear gap between Singapore and Hong Kong in the responses to both questions (0.46 in the political stability assessment Table 7-18 and 0.34 in the political risk assessment Table 7-19; $P<0.05$; there are significant differences between two cities, also see Appendix 28 for ANOVA analysis). This indicates that Singapore was considered the most stable country in terms of politics in the past 10 years, whereas Hong Kong was considered stable but with some doubts from the respondents (14.81% of respondents believed Hong Kong was between fair and high

political risk and 7.40% of them answered that Hong Kong had a fair situation in political stability). Kuala Lumpur, Bangkok and Taipei are in third, fourth and fifth places in both assessments. There is also a clear difference between Hong Kong and Kuala Lumpur in both assessments, with a similar gap (0.80 in political stability assessment and 0.68 in political risk assessment; $P<0.05$; there are significant differences between two cities, also see Appendix 28 for ANOVA analysis). Furthermore, Kuala Lumpur and Bangkok were perceived as having similar political risk. Taipei is at the bottom in both assessments. The gaps between Singapore and Taipei are 1.71 (political risk) and 1.38 (political stability), showing a large difference in political risk ($P<0.05$; there are significant differences between two cities, also see Appendix 28).

Political stability and poor policy decisions have been reflected in the property market performance across the region (Chin 1999). Many respondents believed that the political situation internally or externally has affected the office investment market in the past. For example, the Tiananmen Square issue in China caused the property market to drop by more than 20% in Hong Kong in 1988 (JLW 1994); an unstable government and elections in Thailand in 1997 made the financial situation there worse, which also caused the drop in property markets and currency markets (The Thai Baht was depreciated over 150% in 1998, see Table 7-7). In the past, political uncertainty would accelerate the withdrawal of credit facilities (Chin 1999).

In both assessments, the political situations in Singapore and Hong Kong were perceived as low risk and high stability. Singapore is superior to the other cities in this respect. Singapore has been recognised as having amongst the lowest political risk in the world (Walker et al. 1990, Coface, 1999, Jarvis 2003). This can be explained by its stable and strong leadership (People's Action Party) and racial integration since 1959. A low turnover of senior ministerial appointments and carefully managed transfer of power has contributed to high stability of government control (Walker et al. 1990, Keogh et al. 1999, Coface 1999, Jarvis 2003). One respondent said "*the PAP party won the election in 2001, which played a positive role in stabilising Singapore's economy and investment environment during the period of economic difficulty. Its strong social control has made Singapore one of the strongest and most stable regimes in the world*". Many local respondents have also mentioned this point of view.

One respondent in Singapore believed that "*Singapore's political stability has been the cornerstone to its economic success*".

Hong Kong comes second in both assessments which suggests that it is relatively stable. Walker et al. (1990) mentioned that *"Hong Kong is extremely vulnerable to political and economic changes in China*". This view underlines the uncertainty for Hong Kong's future political stability, and this was been mentioned by many respondents. During the colonial period, Hong Kong experienced high GDP growth. When, in 1984, Britain agreed to hand over Hong Kong to China, the sense of uncertainty increased, owing to a lack of knowledge of what would happen after the handover in 1997, especially following the events of Tiananmen Square in 1989. This event made many investors doubt whether Hong Kong would remain free after 1997. As a consequence, many investors sought out an alternative, and chose Singapore (Walker et al. 1990). In early 1990, Singapore overtook Hong Kong, with the influx of financial firms and investors who were nervous over Hong Kong's uncertain future (Schultz 1990). The perception of political uncertainty in Hong Kong has decreased gradually since 1998, as the Chinese government has retained its "*One Country, Two Systems*" policy. According to the survey, respondents regarded Hong Kong as having fairly good political stability, and the China factor did not appear to influence the score significantly. Yet many of the native Hong Kong Chinese who responded expressed doubts about how long the "*One Country, Two Systems*" policy will last. Moreover, they expressed their concern over whether China would keep to the Joint Declaration and implement the Basic Law. One local respondent said "*there are more and more Chinese influences in Hong Kong nowadays, especially in the respect of the policy making and freedom of the media. Those influences might affect the status of Hong Kong in the future*". Another respondent also mentioned that "*Hong Kong has never been democratic in the past, even during the colonial period. However, the high rates of economic growth made people less concerned about their political rights. After 1997, people in Hong Kong have become more politically aware as they worried that the Chinese government would remove their human and political rights and further damage the city's economic growth*". Although the political risk is low in the case of Hong Kong, many investment markets (including stock market and property market) are still influenced by the political situation there.

Malaysia is considered to be a politically stable country. The reason the political stability level is lower than Singapore and Hong Kong might be explained by some policies which favour Bumiputra (indigenous Malays) in some aspects (Coface 1997). Some respondents pointed out that Bumiputra are treated more favourably than local Chinese and other races (such as Indian) in terms of business, politics and education. Some respondents mentioned that those policies could have an impact on the relationship between different ethnic groups. However, one respondent pointed out that "*although those policies favour the Bumiputra, people have learnt how to deal with them, especially the younger generation. Malaysia should be considered as a politically stable country not only for its stable leadership but also for its stable relationship with the rest of the world*". Another respondent mentioned that "*particularly after the September 11 attack in New York, tension has increased between Muslims and non-Muslims here, who might cause some disturbance to political stability. But, in general, Malaysia is regarded as very stable country*". Prime Minister Mahathir Mohamed provided long-term consistency of leadership since 1957 (he retired in 2003) which helped to stabilise the political and economic situations (Han et al. 1995, Jarvis 2003). The regional director for Asia, Mr Richardson at Economist Intelligence Unit (2003) said "*Dr Mahathir has provided political stability and papered over ethnic divisions*"[7-5]. Both assessments have categorised Malaysia as a low political risk country.

Jarvis (2003) said "*Thailand's economic performance and corporate health have always been a function of political stability and government policy*". This statement has also been confirmed by the survey. Thailand was regarded as only a relatively stable country with some doubts about its internal political issues. Thailand has a fairly stable relationship with neighbouring countries, which stabilises its general political environment. One respondent said "*there is not a clear policy these days, as the government has changed the ministers often. For example, the Minister of Finance has been changed several times in the past 3 years, owing to poor leadership of finance policy*". Most respondents in Bangkok concurred with this observation. Thus, the overall view of Thailand's political risk was attributed to the instability of the

[7-5] http://news.bbc.co.uk/1/hi/business/315192.stm

government (internal stability). Nationalism has grown in the last two years and it was a policy of the Prime Minister Thaksin during the election in 2001. He proposed increased protectionism during the election, gaining substantial support and winning it. This might increase political instability in the future, and further damage office investment markets (Jarvis 2003).

The political situation in Taiwan was perceived to be the worst. Chang et al. (1999) stated *"political tension between Mainland China and Taiwan has played a key role in the real estate market"*. Many local respondents stressed that mainland China is the key to the Taiwanese economic future. The tension between China and Taiwan affects its economy and property market significantly. For example, during the Taiwanese presidential elections in 1996 and 2000, the Chinese government commenced military exercises in the Taiwan Strait, which caused regional and local turmoil (Jarvis 2003, Chang et al. 1999). In 2000, the Kuomintang (KMT, the ruling party for the previous 50 years) lost the presidential election to the Democratic Progressive Party (DPP is seen as pro-independence). Investors were concerned that the DPP's pro-independence policy would cause obstacles for economic growth, as China is one of the main trading partners of Taiwan these days. Thus investment activities were slowing down (Chang et al. 1999, Jarvis 2003). Internally, there is also tension between the original Taiwanese who normally support independence and the mainlanders who came over in 1949 and hope for some kind of reunification with China. One respondent in Taipei stressed that "*political risk is the main risk element for investment purposes in the Taipei market and the property market in Taipei would benefit from political stability. In many cases, foreign investors are afraid of the political instability in Taiwan which might cause further damage for the island's economic growth*". A respondent in an international firm in Hong Kong said "*there is no immediate danger or threat from China for Taiwan. However, the tensions between Taiwan and China create uncertainty, which can only damage Taiwan's economic growth in the future and put foreign investors off the island*". A high perception of political risk seems to be one of the major institutional factors affecting Taipei's office investment market.

To conclude, the Hong Kong and Taipei's office investment markets are very sensitive to the political atmosphere, in particular the relationship with China.

Respondents believed that the unstable relationship with China could affect the office investment markets significantly in both cities, but especially Taipei. This factor does not seem to affect Singapore's office investment market. However, the issue of internal political stability seems to have certain impacts on the office investment markets in Kuala Lumpur and Bangkok.

7.3.9 Government Intervention - Rank 13

Table 7-20: Assessment of Institutional Factors: Government Intervention

Assessment of Institutional Factors Across the Five Cities							
Factor: Government Interventionism							
Distribution of Responses (%)							
	Very Good (Minimum Interventions) (1)	Good (2)	Moderate (3)	Poor (4)	Very Poor (Maximum Interventions) (5)	Mean	S.D.
Bangkok	0.00%	30.00%	45.00%	15.00%	10.00%	3.05	0.94
Hong Kong	16.00%	52.00%	32.00%	0.00%	0.00%	2.16	0.69
Kuala Lumpur	0.00%	33.33%	33.33%	23.81%	9.52%	3.09	1.00
Singapore	13.04%	43.48%	34.78%	8.70%	0.00%	2.61	0.84
Taipei	0.00%	26.32%	57.89%	15.79%	0.00%	2.89	0.66

Table 7-20 provides information on perceptions of the level of government intervention. It is apparent that the average scores are higher than for many other factors, ranging from 2.16 in Hong Kong to 3.09 in Bangkok. None of the cities is considered to be very good in terms of government intervention. Although the score is high in this respect for each city, it has been considered to have a lesser impact on the office investment market in general.

Hong Kong is considered have the least government intervention (mean 2.16). Singapore and Taipei are regarded as having some degree of government intervention. Although the mean scores of Singapore and Taipei are fairly close, the majority of responses in Singapore are in the very good or good range (56.52%), whereas for Taipei (57.89%) they are mostly in the fair range. Bangkok and Kuala Lumpur are perceived as having more government intervention. This result suggests that there are

minimal differences perceived between the five cities in this respect (Although there are significant differences between Hong Kong and Bangkok, the P value for ANOVA analysis shows lower than most of the other factors, also see Appendix 29).

Seek (1996) said "*Governments have much stronger involvement in property in Asia*". The Hong Kong government does not generally interfere with market operation except to take action against some types of speculation, such as currency speculation in 1999. The Singaporean and Taiwanese governments try to use their power to influence market activity such as currency exchange rates and development schemes but still let the market operate relatively freely (Walker et al. 1990, Walker et al. 1991). Keogh et al. (1999) described the situation in Singapore as follows: "*State intervention in support of economic development is pervasive..... There is close co-ordination of economic development at the highest levels of government and the civil service, reflecting the fact that so much of the government agenda is oriented towards sustained economic growth*". This intervention involves infrastructure provision and economic activity (such as tax incentives) (Colliers Jardine 1997). Walker et al. (1990) also pointed out that "*the firm government regulation of business is also one of the features of investing in Singapore*". These kinds of intervention are also very common in Taiwan and Malaysia too, but the interventions are largely in support of free enterprise and economic growth especially in the case of Singapore (Keogh et al. 1999). In Singapore and Taiwan, the governments' attitudes have been authoritarian and paternal. Both of the governments have tried to intervene not only in economic management but also for the promotion of a social and political agenda (Keogh et al. 1999). As a consequence, those governments' intervention tends to stabilise the office investment markets in Singapore, Hong Kong and Taipei.

The Thai and Malaysian governments intervene in many investment activities, such as exchange rates, development schemes, market conditions and foreign investment activities. This might be explained by the fact that they are newly developing economies; therefore, their governments would like to influence the direction of the developments and investments. Some respondents stressed that the Malaysian government has been intervening with development projects but it has relatively high administrative efficiency; however, the Thai government is seen as having the lowest administrative efficiency, which might be because of a high perceived level of

corruption there (Armitage 1996). Office investment markets are perceived to be negatively affected by this factor in both cities (Bangkok and Kuala Lumpur).

7.3.10 Perceived Corruption Level - Rank 15

Table 7-21: Assessment of Institutional Factors: Perceived Corruption Level

Assessment of Institutional Factors Across the Five Cities							
Factor: Perceived Corruption Level							
Distribution of Responses (%)							
	Very Good (1)	Good (2)	Moderate (3)	Poor (4)	Very Poor (5)	Mean	S.D.
Bangkok	0.00%	10.00%	35.00%	40.00%	15.00%	3.60	0.88
Hong Kong	53.85%	38.46%	7.69%	0.00%	0.00%	1.54	0.65
Kuala Lumpur	0.00%	25.00%	60.00%	15.00%	0.00%	2.90	0.64
Singapore	79.17%	16.67%	4.17%	0.00%	0.00%	1.25	0.53
Taipei	5.00%	10.00%	50.00%	35.00%	0.00%	3.15	0.81

Perceived corruption levels were considered to be less important. Singapore and Hong Kong are both considered to be the least corrupt. The corruption level is seen as fair in Kuala Lumpur. Taipei and Bangkok are both considered to have higher levels of corruption. Again, low standard deviations confirm that most respondents share similar views on this aspect. There is a 2.35 mean difference between Singapore and Bangkok, indicating an extremely high perception of corruption in Bangkok compared to Singapore ($P<0.05$; there are significant differences between two cities, also see Appendix 30 for ANOVA analysis).

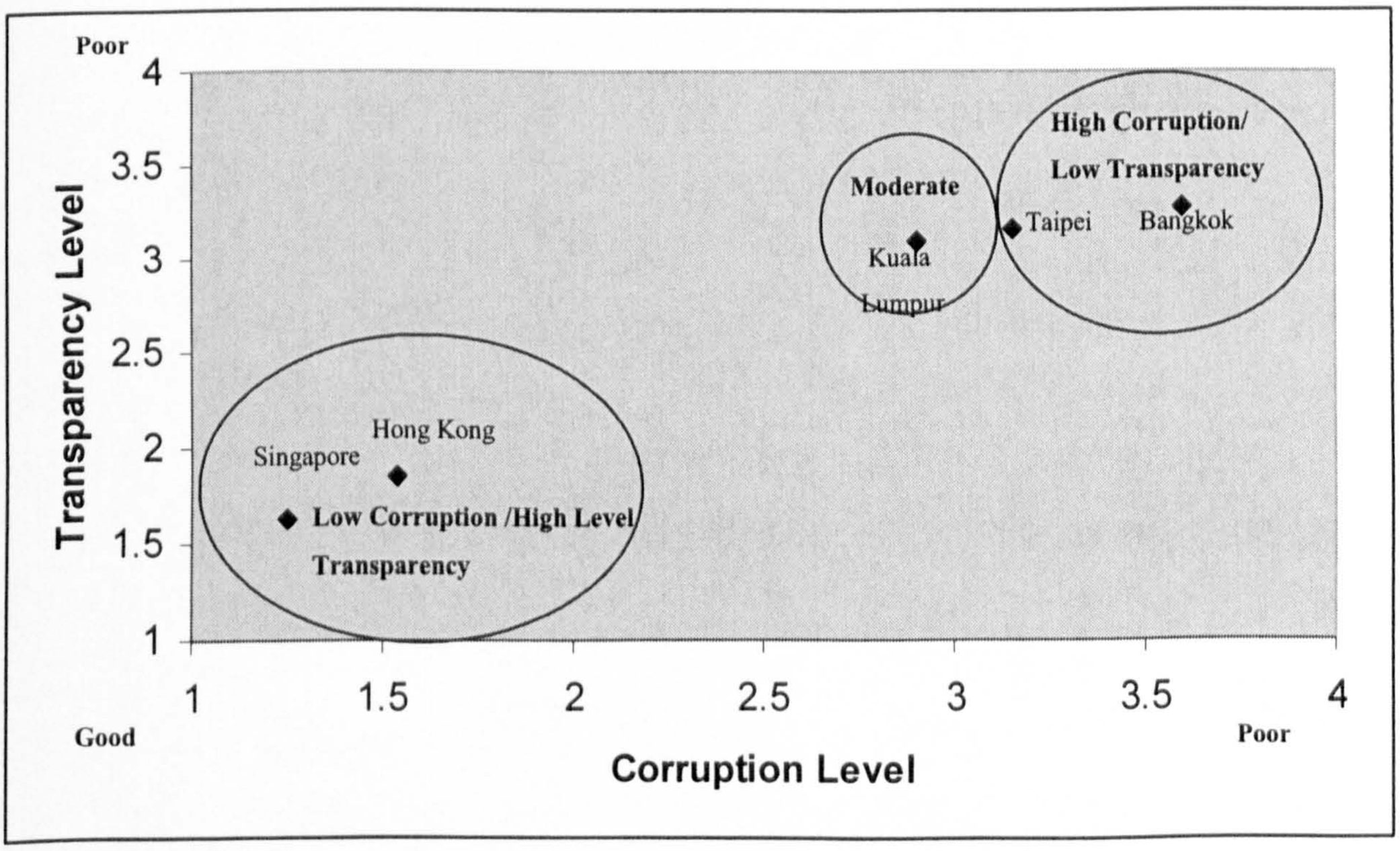
Table 7-22: Corruption perception Indices for South-East Asian Countries

	1980-1985	1988-1992	1998	1999	2002
Singapore	8.4	9.2	9.1	9.1	9.3
Hong Kong	7.4	6.9	7.8	7.7	8.2
Malaysia	6.3	5.1	5.3	5.1	4.9
Taiwan	6.0	5.1	5.3	5.6	5.6
Thailand	2.4	1.9	3.0	3.2	3.2

Source: http://www.transparency.org/cpi/2002/cpi2002.en.html

Table 7-22 exhibits the level of perceived corruption indices (higher numbers indicate less corruption). Singapore has achieved the highest since 1980, followed by Hong Kong, Malaysia, Taiwan, and Thailand. It also shows that level of perceived corruption has only slightly increased in the period of 1988 to 1992, except in the case of Singapore. The ranking order of Table 7-22 matches the results of the questionnaire survey Table 7-21. Many respondents believed that the level of corruption is closely linked with the level of transparency (Figure 7-4, also see Appendix Thirty One for cluster analysis).

Figure 7-4: Correlation between Corruption Levels and Transparency Levels of the Market



Keogh et al. (1999) have noted that *"Singapore is a parliamentary democracy supported by an efficient, professional and non-corrupt civil service"*. Singapore and Hong Kong both have efficient governments and special departments which deal with cases of corruption. This also can be explained by the Western influences on both cities, and higher level of education. In addition, both countries offer a higher capacity of law and order, corporate governance and political stability, which also contribute to their low corruption levels. However, one respondent said "*if you want to do investment in South-East Asia, you will have to deal with corruption. Corruption exists in all South-East Asian cities to some degree, including Singapore and Hong*

Kong. However, Bangkok is the worst compared to the other cities. Investors have to regard it as a part of everyday business". In terms of the relatively poor score for Taipei in this section, respondents mentioned that it might be explained by the perceptions of the Chinese culture of "*Guan-Xi*" (special networks). One local respondent stressed that "*the level of corruption is not hugely worse than in other regional countries, especially in Taipei. The high education level of residents in Taipei has made it difficult to bribe politicians and businesses and it is hard to see black-gold activities in the city of Taipei*".

Bangkok is notorious for corruption, which happens among governmental officials and the civil service (Jarvis 2003, Armitage 1996). This kind of activity is also very common in the property and banking industries. Brett (2002) pointed out that "*there was much "crony lending" to relatives and associates and money raised for commercial purposes was in reality often channelled into the property sector*". Some respondents alleged that the abandonment of the airport link to the city was caused by political corruption. One respondent said *"many politicians would like to gain some benefits from the development projects. The latest example is the abandonment of the airport link rail system. Many politicians asked the construction company (a Hong Kong-based company) for benefits in order to smooth approvals for the project. However, the amounts of bribes demanded were huge and, in the end the construction company abandoned the project*". Stonier (1995) also mentioned that political wrangling and corruption issues resulted in serious delays in getting major public infrastructure projects completed. More than 20% of the state budgets are alleged to be lost to corrupt officials (Coface 1999, Jarvis 2003). A respondent also said "*corruption has generally added 20% to business operation cost; therefore, it has had an impact on potential office investment growth. Although the National Commission to Counter Corruption was created in 1997 to track down corruption activities, the corruption level still remains relatively high in Thailand".*

Social and Cultural Institutions

Social and Cultural institutions are not considered to be the most important factors affecting office investment markets. Public infrastructure levels and the level of

market transparency seem to be the most influential factors in this category. On the other hand, professional level, urban form and cultural differences are believed to be less important or unimportant.

7.3.11 Public Infrastructure Standard - Rank 10

Table 7-23: Assessment of Institutional Factors: Public Infrastructure Level

Assessment of Institutional Factors Across the Five Cities							
Factor: Public Infrastructure Level							
Distribution of Responses (%)							
	Very Good (1)	Good (2)	Moderate (3)	Poor (4)	Very Poor (5)	Mean	S.D.
Bangkok	0.00%	9.09%	54.55%	27.27%	9.09%	3.36	0.79
Hong Kong	53.85%	38.45%	3.85%	3.85%	0.00%	1.57	0.76
Kuala Lumpur	9.09%	45.45%	40.91%	4.55%	0.00%	2.41	0.73
Singapore	79.17%	16.67%	0.00%	4.17%	0.00%	1.29	0.69
Taipei	10.00%	35.00%	45.00%	10.00%	0.00%	2.55	0.83

Public infrastructure is ranked number 10 for affecting office markets. Walker et al (1990) said "a major part of the comfortable business environment is provided by the quality and efficiency of the city's urban infrastructure of private and public buildings, utilities services and transportation systems". Office investment markets can be influenced and supported by well-developed transport, power and communication systems. Traffic congestion is a common problem in all five cities since the 1980s (Colliers Jardine 1997, Berry et al. 1999).

Bangkok has the worst score, and is considered to have the poorest public infrastructure level among the cities. Respondents who answered poor in most cases mentioned that it was mainly traffic congestion which particularly affected office investment markets, and this had frequently not been handled well in the main CBD districts. Kuala Lumpur and Taipei were perceived to have relatively good public infrastructure facilities, but with some limitations, such as a limited network for their metro systems. There is a big gap between Bangkok and Taipei (0.81; $P<0.05$; there are significant differences between two cities, also see Appendix 32) and Bangkok

and Singapore (2.07; P<0.05; there are significant differences between two cities, also see Appendix 32). This gap shows that the level of Bangkok infrastructure is far below the other cities. This is the biggest gap amongst all of these assessments.

Hong Kong's modern mass rapid transit system (MTR) has an extensive route network covering the areas on Hong Kong Island and the Kowloon peninsula, where most businesses are located. Hong Kong's Chek Lap Kok airport and Singapore's Changi airport are the two main gateways for the region's air transportation. When it opened in 1998, Chek Lap Kok was the biggest airport in the world. One impact of the new airport was the removal of the height restriction for buildings on the Kowloon peninsula, which has attracted office investment activities in the area (Colliers Jardine 1997, Walker et al. 1990, CB Richard Ellis 1999). Hong Kong and Singapore are also two of the world's busiest ports in terms of shipping and container handling (Colliers Jardine 1997, Walker et al. 1990). Many respondents pointed out that the convenient air traffic and sea shipping are positive features for both cities' economic growth and ability to attract foreign investment. Walker et al. (1990) also said that *"Hong Kong's prosperity is underpinned by the location and density of its buildings, the speed and efficiency of its communication and transportation systems and the clarity and fairness of its land tenure system*". Singapore has a highly developed infrastructure which enhances the country's suitability as a business location and boosts its office investment market. In terms of solving the traffic congestion problem, the Singapore government has introduced a congestion charging scheme called the whole-day Area Licensing Scheme (ALS). This scheme has helped to reduce traffic congestion. Moreover, an MRT and a light rapid transit system (LRT) now cover most of the island, and the government is currently building some extension routes for the MRT in order to cover the southern part of the island. Both cities also offer extensive bus services covering their territories. Hong Kong and Singapore's investment environments are therefore both supported by well-developed infrastructure (Motha et al. 1989, Keogh et al. 1999). Apart from the high public transportation level in both cities, many respondents also mentioned that high speed internet connections and excellent telecommunications networks have also been adopted widely and are available in both cities, which also boost the office markets. Extremely sound and advanced public infrastructures have boosted the office investment markets in Hong

Kong and Singapore, especially when the neighbouring cities have not been able to offer the same standard public infrastructure.

A key element in the Malaysian government's successful mobilisation of resources to build public utilities and infrastructure service was to institute privatisation in the 1990s. Before 1990, the provision of public infrastructure had not kept pace with economic growth in Kuala Lumpur, which created severe traffic congestion in the City area (Keogh et al. 1999). The governments in Kuala Lumpur and Taipei planned and built their Metro (MRT) systems after the early-1990s, in order to provide efficient transportation for the CBD area. In Taipei, six MRT lines have been in full operation since 2000, covering most of the city area. There are further extensions currently under construction in some outskirts of Taipei. In addition, the completion of the High Speed Railway system (HSR) will enhance the potential of office markets in Taipei. One respondent in Taipei mentioned that "*since the MRT has been in operation in the city, the office rental values have increased, especially for those buildings which are close to the MRT stations*". Many local respondents believed that a fully functional MRT system will be a major plus for the Taipei office market. Many local respondents said that the level of public infrastructure in Taiwan is not lower than the level in Singapore and Hong Kong. For example, the high-speed internet, electricity, water and other elements are also very sound in Taipei.

In Kuala Lumpur, two of five new light rail lines (LRT) were completed by 1999 and the new Kuala Lumpur International Airport at Sepang was opened in 1998. One respondent in Kuala Lumpur said "*the new light rail system in the city of Kuala Lumpur will be a positive point for its property market, which could also ease the traffic congestion problem in the city*". Another respondent pointed out that "*the new airport could handle a large amount of passengers and cargo. The government is trying to establish the new airport as a regional transportation centre, which will be major competition for Singapore. In addition, the sea port has become a major competitor for Singapore in the past 3 years, as it offers extensive services at a lower cost than Singapore*". In both Kuala Lumpur and Taipei, there is a good bus service in the city areas (Cushman and Wakefield 2001). In addition, the Taiwanese government has stated its intention to position the country as an "*Asia Pacific Trade and*

Transportation Centre", which means they will have to continue to improve the island's infrastructure level (Cheng et al. 1999).

Armitage (1996) mentioned that there are serious infrastructure limitations in Bangkok, especially in the public transport sectors. Bangkok is notorious for its traffic congestion. The lack of sectoral planning, policy and regulations have worsened the public infrastructure level in Bangkok, especially in traffic aspects (Stonier 1995, Armitage 1995). Stonier (1995) said that the traffic congestion problems in Bangkok consist of three categories: physical, institutional and lack of expertise. Political procedural problems also contribute to the poor provision of infrastructure, which creates serious negative externalities in Bangkok (Armitage 1996). Traffic congestion has improved a little since the sky train (MRT) began operation in 1999, but the network is still very limited. Bray et al. (2002) noted that "*it was not possible to directly link the Bangkok Transit System (BTS) to rises in rents and property value. ..... however, the improved accessibility and image provided to properties near the BTS is an effective point of differentiation that make it easier to lease the properties, which in turn also increases their value*". They also pointed out that this factor will become stronger when the property market recovers, as property value and accessibility will have a greater influence on decisions than occurred in the past (Bray et al. 2002). One local respondent said "*although the sky train has a positive impact on the property market in Bangkok, the traffic congestion is still a major problem in some areas that the sky train network does not cover. Many investors would only consider the area which has better access to the sky train system. Without the sky train network, it could still take a few hours to cross the city*". The Thai government has made some major investments in the sea port, airport, power stations and transportation facilities since 1995. However, the relatively limited provision of basic infrastructure, such as water and electricity, may still constrain the growth of the office investment market there.

To sum up, Hong Kong and Singapore have the highest levels in this respect; therefore, it does not have a negative significant impact on their office investment markets. The office investment market is still under greater influence of the level of public infrastructure in emergent cities, particularly in the case of Bangkok.

7.3.12 Assessment of Transparency Issues

Table 7-24: Assessment of Institutional Factors: Level of Transparency of Market

Assessment of Institutional Factors Across the Five Cities							
Factor: Level of Transparency of Market							
Distribution of Responses (%)							
	Very Good (1)	**Good (2)**	**Moderate (3)**	**Poor (4)**	**Very Poor (5)**	**Mean**	**S.D.**
Bangkok	0.00%	18.18%	45.45%	27.27%	9.09%	3.27	0.88
Hong Kong	38.46%	46.16%	7.69%	7.69%	0.00%	1.85	0.88
Kuala Lumpur	4.55%	9.09%	68.18%	9.09%	9.09%	3.09	0.87
Singapore	50.00%	41.66%	4.17%	4.17%	0.00%	1.63	0.77
Taipei	5.26%	5.26%	57.89%	31.58%	0.00%	3.16	0.76

Table 7-24 illustrates the results from Question 12. Singapore (91.66%) and Hong Kong (84.62%) are considered as the most transparent cities (mean 1.63 and 1.85 respectively). Kuala Lumpur, Taipei and Bangkok are considered to be below moderate status in terms of market transparency. The rank order for this survey is the same as Jones Lang LaSalle's Transparency Index (2004) (Also see Table 2-28).

Table 7-25: Assessment of Risk: Transparency Risk

Assessment of Different Risks							
Factor: Transparency Risk							
Distribution of Respondents (%)							
	Very High Risk (1)	**High Risk (2)**	**Moderate (3)**	**Low Risk (4)**	**Very Low Risk (5)**	**Mean**	**S.D.**
Bangkok	7.41%	48.15%	25.93%	11.11%	7.41%	2.63	1.04
Hong Kong	0.00%	0.00%	14.81%	55.56%	29.63%	4.15	0.66
K.L	3.57%	25.00%	57.14%	14.29%	0.00%	2.82	0.72
Singapore	0.00%	0.00%	0.00%	57.69%	42.31%	4.42	0.50
Taipei	0.00%	25.00%	54.17%	20.83%	0.00%	2.96	0.69

The assessment of transparency risk in Question 10 also shows similar results (Table 7-25). All respondents (100%) recognised that Singapore has a very low transparency

risk (mean 4.42) and Hong Kong comes second (mean 4.15). Taipei, Kuala Lumpur and Bangkok again are in the category of high transparency risk. Standard deviations are mostly low, except in the case of Bangkok (S.D. 1.04). This is because some local respondents considered Bangkok as a very transparent city.

There is a lot of similarity in both assessments. Singapore and Hong Kong are both in the category of low transparency risk, and the other three cities are all in the category of high risk. There is a distinct difference between the two groups. Singapore is seen as the most transparent city, with around 0.2 difference lead over Hong Kong in both assessments ($P>0.05$; there are no significant differences between two cities, also see Appendix 33). The gaps between Kuala Lumpur, Taipei and Bangkok are also around 0.2 (mean differences) in both assessments, indicating that the levels of market transparency are considered to be similar, with higher risk (also see Appendix 33 for ANOVA analysis). There is a big gap between Singapore and Bangkok: 1.64 in the assessment of transparency and 1.79 in transparency risk assessment ($P<0.05$; there are significant differences between two cities, also see Appendix 33). This implies that the second group is seen as far behind the first group in terms of the transparency issue, and this would have a significant impact on decision-making for office investment.

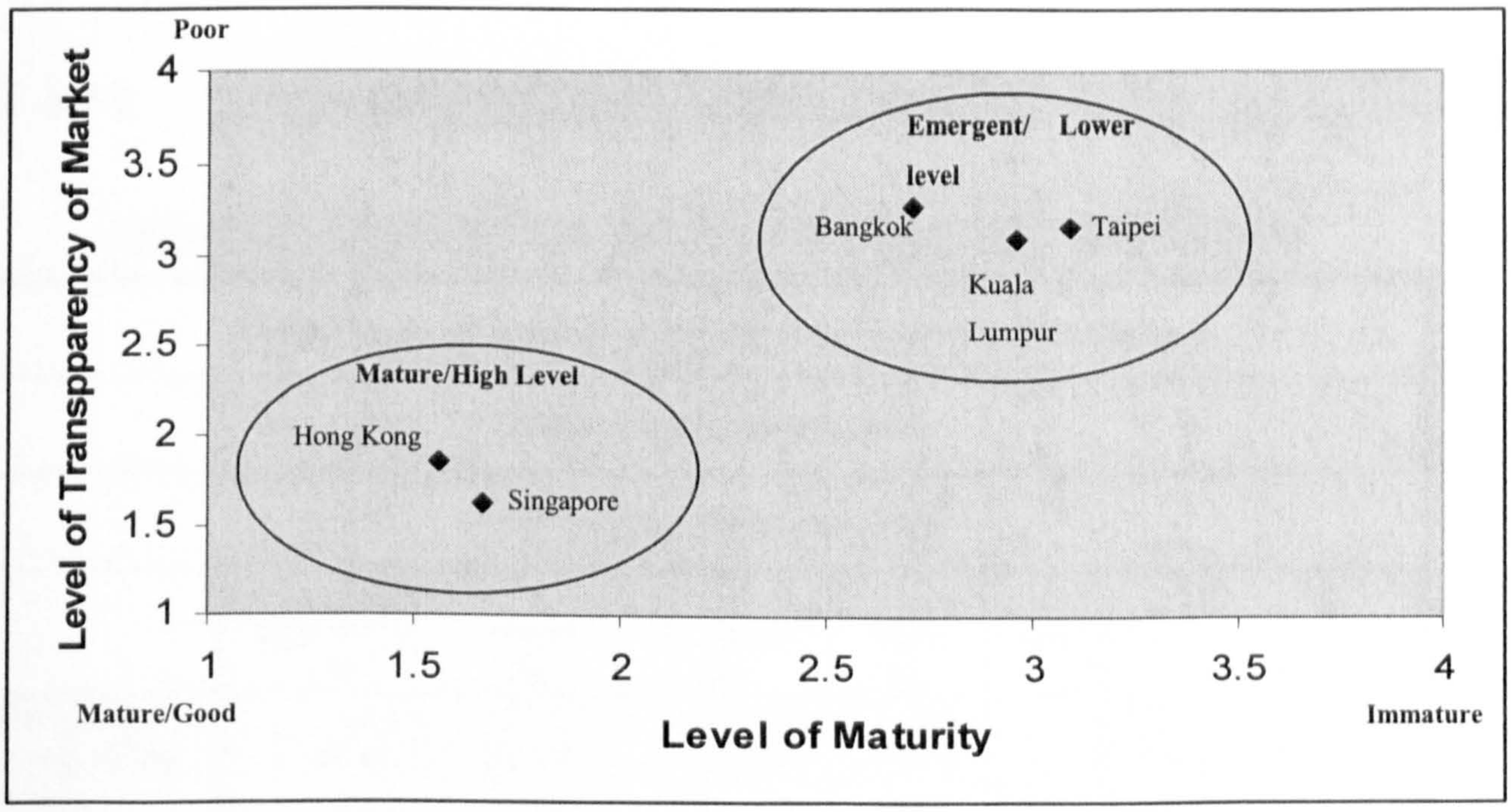
Table 7-26: The Level of Transparency in South-East Asian Countries

Country	Transparency	JLL Index (2004)
Hong Kong	High	1.50
Singapore	High	1.55
Malaysia	Semitransparent	2.30
Taiwan	Low	3.10
Thailand	Low	3.44

Source: Lee (2001) and Jones Lang LaSalle (2004)

Lee (2001) also examined the level of transparency for some South-East Asian countries (Table 7-26). He mentioned that market maturity and transparency are closely related to one another. The results in the level of transparency are also consistent with the level of maturity in this study (Figure 7-5). In the aspect of transparency level, Hong Kong and Singapore are the highest. Lee regarded Malaysia as semitransparent; and Taiwan and Thailand as at low levels of transparency. His findings are consistent with the results of this survey.

Figure 7-5: Correlation between Market Maturity and Transparency Level of the Market



Transparency risk is one of the main elements of property investment decisions. Transparency will provide investors with an idea of the efficiency of their transaction. Transparency risk not only refers to the transparency of individual transactions, but also to the transparency of information from other transactions, and of the legislative process. The analysis shows that Hong Kong and Singapore are considered to have the lowest risk in transparency. Most of the respondents pointed out that both of those countries have well-rounded transaction regulation. Any transactions have to be registered with the actual price with the government. In addition, both governments have special departments (Anti-Corruption Agencies) focused on reducing corruption. The perceptions of risk are again the lowest among all five cities. One respondent in Hong Kong said "*there are some concerns about the level of the transparency in Hong Kong after 1997. The influence from China might affect Hong Kong's transparency level in legislation and transaction processes*". A few other local respondents agreed with this view.

Thailand is again the highest in transparency risk. This might be because of the perception that corruption levels are high and market transaction information is also not readily accessible by the public. Taiwan and Malaysia are perceived as at a high

level of risk. This might be because market information is not transparent enough and the overall perception of corruption within the government is higher than in Singapore and Hong Kong (Armitage 1996).

7.3.13 Professional Level - Rank 13

Table 7-27: Assessment of Institutional Factors: Professional Level

Assessment of Institutional Factors Across the Five Cities							
Factor: Professional Level							
Distribution of Responses (%)							
	Very Good (1)	Good (2)	Moderate (3)	Poor (4)	Very Poor (5)	Mean	S.D.
Bangkok	0.00%	19.05%	61.90%	14.29%	4.76%	3.05	0.74
Hong Kong	50.00%	38.46%	11.54%	0.00%	0.00%	1.62	0.70
Kuala Lumpur	9.09%	22.73%	54.55%	13.64%	0.00%	2.72	0.83
Singapore	50.00%	33.33%	16.67%	0.00%	0.00%	1.67	0.76
Taipei	10.53%	5.26%	52.63%	31.58%	0.00%	3.05	0.91

The quality of property professional services (professional level) is ranked number 13 in terms of the importance of institutional factors. Most respondents believed that deficiencies in the overall professional level could be overcome by their own networks, so this is not regarded as one of the significant factors of office investment markets.

Hong Kong and Singapore are both perceived to have the highest professional levels. This is because of the high quality education system, well-regulated financial and property markets, and influence of the British system (Colliers Jardine 1997, Coface 1997, Walker et al. 1990). The professional body in Singapore is the Singapore Institute of Surveyors and Valuers (SISV) and, in Hong Kong, the Hong Kong Institute of Surveyors (HKIS). Both organisations are the only professional bodies representing property service providers and they also have close links with Royal Institution of Chartered Surveyors (R.I.C.S) (Keogh et al. 1999, Yu et al. 1997). A respondent in Hong Kong said "*the close link with R.I.C.S means that Hong Kong and Singapore property markets are exceptionally well endowed with reliable and up-to-date information*".

In Kuala Lumpur, although there is no central institution which licenses the property profession, the presence of international property companies helps to maintain international standards. The R.I.C.S has a branch in Malaysia which offers up-dated information for its local practitioners (Yu et al. 1997). One senior local respondent said "*some major property firms and universities have linked with British universities and the R.I.C.S, The close links help ensure the quality of the property professional. There are more and more surveyors who have the R.I.C.S qualification in the major firms in the city of Kuala Lumpur*".

The poor professional level in Bangkok may be explained by the general low quality of the workforce, lack of trained professional staff and relatively under-developed property professional services (Armitage 1996). Brett (2002) also pointed out the lack of rigorous valuation standards and professionalism as one of the factors causing the financial crisis in Thailand in 1997. One local respondent in an international firm said "*although there is the Thai Property Valuation Standards Association, the general quality of the professions is relatively low compared to Singapore and Hong Kong. Both government and private sectors issue certification for property valuation, which has caused confusion about which is the "proper" certification for valuers*". The Valuers Association of Thailand and the Thai Valuers Association are the two valuers' associations, but those two groups are not compatible with each other in many respects (Brett 2002). Brett (2002) also commented that "*the property investment market was underdeveloped and income-based valuation methods were virtually unknown..... Much property-backed lending had been undertaken on the back of outright fraudulent valuation, or valuations by valuers who were not truly independent*". The laws of Thailand do not require valuers to hold a licence. The Bank of Thailand issues a list of qualified valuation companies and the Securities and Exchange Commission also plans to compile a list of qualified valuers (Arriyavat 1997). Brett (2002) also mentioned that the R.I.C.S. Thailand Group was commissioned by the Securities and Exchange Commission of Thailand to produce a White Paper on "Developing The Valuation Professional in Thailand", which was hoping to increase the reliability of valuation in Thailand.

Respondents mentioned that Taiwan has a very highly skilled workforce and professional labour in many areas, except for property markets. The government passed the Chartered Valuer Statute in 2001 in order to provide qualified advice and staffing for the property market (also see Section 5.3.2). Many local respondents believed that this statute would improve the level of property professionals significantly.

This social institution factor is again considered as less important in its effect on office investment markets; however, respondents believed that it still has negative impacts on the Bangkok office market.

7.3.14 Urban Form (Planning) - Rank 16

Table 7-28: Assessment of Institutional Factors: Urban Form (Planning)

Assessment of Institutional Factors Across the Five Cities							
Factor: Urban Form (Planning)							
Distribution of Responses (%)							
	Very Good (1)	Good (2)	Moderate (3)	Poor (4)	Very Poor (5)	Mean	S.D.
Bangkok	0.00%	9.52%	42.86%	23.81%	23.81%	3.62	0.97
Hong Kong	11.54%	57.69%	26.92%	3.85%	0.00%	2.23	0.71
Kuala Lumpur	0.00%	31.82%	59.09%	9.09%	0.00%	2.77	0.61
Singapore	50.00%	41.67%	4.17%	4.17%	0.00%	1.63	0.77
Taipei	0.00%	21.05%	36.84%	42.11%	0.00%	3.21	0.79

Urban form is recognised as one of the least important factors for office investment markets. Urban form gives an idea of how well developed a city is, and how well the urban design and planning works. Many respondents stressed that, although urban form is not the main criterion for office investment markets, because most investors are focusing on achieving a high rate of return.

Keogh et al. (1999) said "*Land use in Singapore is highly regulated in support of national priorities for economic growth and environment management. In common with the boarder process of economic policy, land use is strongly interventionist but*

oriented towards the priority of a market system". In Singapore, the urban policy and planning issues are mainly decided by the Urban Redevelopment Authority (URA) (Walker at al. 1990, Motha et al. 1989, Keogh 1999). The planning system in Singapore adopts both flexible guidance and strong government interventions, which contributes to the precise and clean urban form of Singapore. Hong Kong's urban planning exists and works well, but the demand for space is still growing. Hong Kong has a relatively straightforward three tier planning system: territorial level, sub-regional level, and district and local level (Walker et al. 1990). In Hong Kong, town planning adopts a very flexible way to design the urban space, which provides developers with a relatively free environment in which to carry out urban development (Berry et al. 1999). Many respondents pointed out that urban form in Hong Kong is not as well controlled as Singapore.

The planning system in Malaysia has been influenced by the British system. In terms of its development and planning control system, they are under the jurisdiction of state governments with two major pieces of legislation: Town and Country Planning Act 1976 and Uniform Building By-Laws 1976 (Keogh et al. 1999). One respondent mentioned "*Although there has been a planning system existing in Kuala Lumpur since the 1970s, Kuala Lumpur started its urban planning and regeneration in the mid 1990s, and urban form has improved significantly*". The most successful project is the regeneration of the KLCC area. The latest project that the Malaysian government has established is a new planned town, Putrajaya, for all government departments, which will become the central government district.

The urban planning system in Taipei is based on an American-style zoning scheme, which is very different from the British planning system. Under this scheme, Taipei is divided into several different zones with different types of land use. In each zone, a group of land uses is stated carefully and allowed for specific purposes. Large construction projects have to gain approval from this committee (Berry et al. 1999). Generally speaking, Taipei offers relatively good urban form, especially in the eastern Xin Yi part of Taipei, which has become the main business and political district. One respondent said "*the urban form is extremely good in Xin-Yi area, which shows the great success of the urban planning. However, how to apply those concepts into other parts of the city is very difficult, owing to the existing planning system*". The planning

system is inflexible. Central government is currently making efforts to adopt a development permission system, similar to the system in the United Kingdom. This might cause more flexible land use for the development market (Chang et al. 1999).

Hoskins (1995) (cited in Plumb 1999) said "*Bangkok is not a beautiful city. With neither the natural advantages of Hong Kong nor the urban precision of Singapore, it sprawls across the unrelieved monotony of an alluvial plain in a way that was never planned and is little expected*". He also mentioned that "*Bangkok's planners are about 30 years behind the times..... Even where legislation does exist, implementation is difficult and there are usually ways to circumvent the law*". Plumb (1999) pointed out that the absence of a strategic planning framework has caused many problems for the city of Bangkok, such as traffic congestion, poor infrastructure facilities (water, air and open space), and difficulty in providing municipal service to scattered and unplanned residential neighbourhoods. These are partly as a consequence of the inconsistency of its planning system and control, and the absence of a co-ordinated planning framework (Armitage 1996). Bangkok does have western-style planning controls and a zoning system, but these seem to be irrelevant to developments (Arriyavat 1997, Armitage 1996, Colliers Jardine 1997, Plumb 1999). This can be explained by the lack of enforcement of planning controls; no effective limitation on development; disintegration of authorities' responsibilities; poor efficiency of the government; and the Thai culture of being "*not welcoming to change*" (Armitage 1996, Plumb 1999). Local respondents believed that urban form has little impact on Bangkok's office investment market, and that other legal and economic factors have far stronger impacts.

7.4 Summary

Table 7-29: Summary of Rank Order of Institutional Assessments (Without Considering Different Weights)

	Bangkok	Hong Kong	Kuala Lumpur	Singapore	Taipei
Total Score	51.12	28.52	43.40	25.95	45.58
Average Score	3.20	1.78	2.71	1.62	2.85
Rank	5	2	3	1	4

Table 7-29 exhibits the total scores, average scores and the rank order of each city for institutional factors, without considering the different weight of each, so each factor is regarded as of equal importance.

Singapore comes first, with an average score of 1.62, followed by Hong Kong (average score 1.78). The average scores for both cities indicate that they both offer very sound environments in terms of institutional factors. Kuala Lumpur and Taipei are in the third and fourth places (average 2.71 and 2.85 respectively). This implies that they have a degree of maturity in institutional factors, and they both offer a fair institutional environment for investment. Bangkok comes last (average 3.20), indicating a relatively poor institutional environment for investment.

Table 7-30 shows the total scores, average scores and rank order for each city but applying different weightings for each institutional factor, based on the importance of each, as assessed in Section 7-2. The mean scores from Table 7-1 (Question 12) for each institutional factor are used as the weighting parameters (Table 7-30) in order to see the differences between equal weighted and unequal weighted results.

In this assessment, a higher total implies a poorer institutional environment. Thus, the lowest possible total, implying the best institutional environment (i.e. assuming a score of "1" for each factor), is 55.40, whereas the worst possible total (based on a score of "5" for each factor) is 277.00, and the total for an average/fair environment (taking the middle score of "3" for each factor) is 166.20.

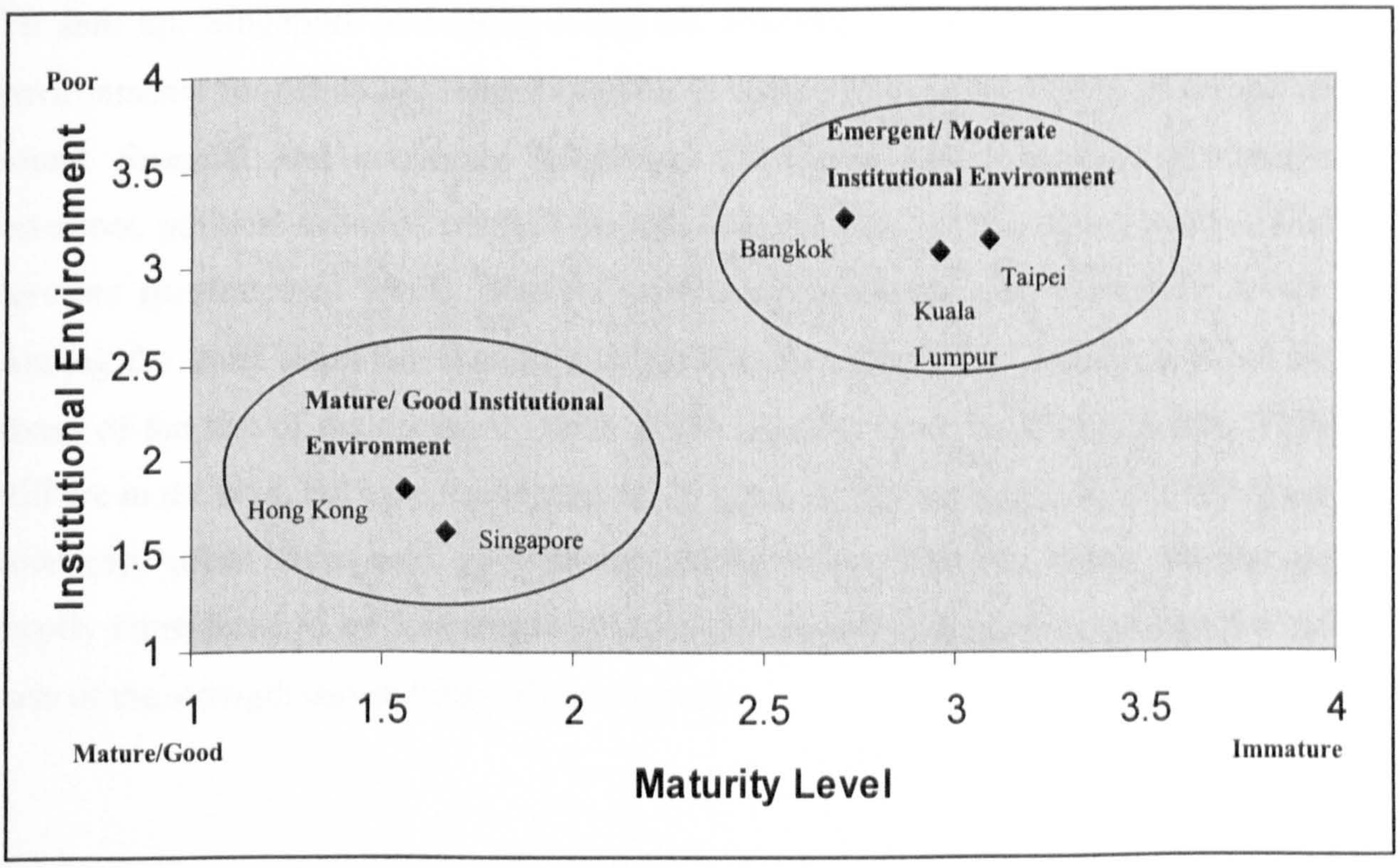
Table 7-30: Total and Rank of the Institutional Assessments (Different Weightings)

Factors	Mean (Parameter)	Bangkok	Hong Kong	Kuala Lumpur	Singapore	Taipei
Sound Financial and Economic Structure	4	12.19	7.36	9.52	5.91	10.20
Strength and Stability of Economy	4	12.73	10.15	9.82	8.00	10.60
Restriction on Foreign Investors	3.96	12.71	6.53	12.08	6.44	11.50
Political Stability	3.6	10.15	6.12	9.00	4.46	10.62
Legal Regulation	3.58	11.99	5.87	9.88	5.58	9.74
Tax	3.56	10.49	5.73	9.26	6.96	9.93
Legal Framework	3.52	11.33	5.49	8.31	5.03	9.61
Liberalisation of Financial Market	3.52	9.72	5.55	11.04	5.63	10.19
Currency Exchange	3.46	10.85	5.97	9.00	5.40	8.82
Transparency of Legislative System	3.44	12.04	5.92	8.84	4.92	9.74
Public Infrastructure level	3.44	11.56	5.40	8.29	4.44	8.77
Level of Transparency of the Market	3.26	10.67	6.02	10.08	5.30	10.30
Professional Level	3.06	9.32	4.96	8.32	5.11	9.34
Government Intervention	3.06	9.33	6.61	9.46	7.99	8.84
Perceived Corruption Level	2.98	10.73	4.58	8.64	3.73	9.39
Urban form	2.96	10.71	6.60	8.21	4.81	9.50
Total		176.54	98.86	149.74	89.70	157.09
Rank		5	2	3	1	4
Maximum Possible Score (Worst Institutional Environment)	277.00					
Middle Score (Fair Situation)	166.20					
Minimum Possible Score (Best Institutional Environment)	55.40					

The results in Table 7-30 are consistent with Table 7-29 with the same rank order. Singapore still comes first, followed by Hong Kong, with total scores of 89.70 and 98.86 respectively. Kuala Lumpur comes third with 149.74, Taipei is fourth with 157.09, and Bangkok comes last with the highest score of 176.54. Figure 7-6 indicates that market maturity has a positive correlation with level of institutional environment.

In other words, the more mature the economy, the sounder the institutional environment is for the office investment market.

Figure 7-6: Correlation between Maturity Level and Institutional Environment



In this institutional environment analysis, it is clear that economic/financial institutions and legal institutions are the main categories which affect the office investment market. However, political stability is also considered to have a significant impact. Hong Kong and Singapore are superior to Kuala Lumpur, Taipei and Bangkok in those important respects. Most of the other political institutions and social/cultural institutions are considered to be less influential.

Most of the institutional factors do not have significant impacts on the Singapore and Hong Kong's office investment markets, except for the cases of the strength and stability of the economy. Although the aspects of political stability and transparency of legislative system raised certain concerns in the case of Hong Kong, they were not considered to have significant influence on the office investment market there. In the case of Kuala Lumpur, most factors are considered to have impacts on the office investment market, particularly the aspects of liberalisation of financial markets, restrictions on foreign investors, and the level of transparency of the markets. The

same situation also appears in Taipei. None of those factors are perceived to be good in Bangkok; therefore, all the institutional factors are believed to have significant impacts on Bangkok's office investment market.

To sum up, Singapore and Hong Kong are considered to be the best institutional environments for office investment markets in all cases, but particularly in respect of sound financial and economic structures, restriction and regulation of foreign investors, political stability, public infrastructure, the quality of property professional services (professional level), level of market transparency and corruption levels. Among the most important institutional factors, they both score highly, and are far ahead of the rest of the sample in three of the top four most important factors. They still are in the lead, but by a lesser amount, in terms of the strength and stability of the economy, urban form and government intervention. However, those factors are mostly considered to be less important to office investment markets, except for the case of the strength and stability of the economy.

Chapter 8 Conclusion

8.1 Introduction

The overall aim of this research is to establish the principal drivers of office investment market performance in five South-East Asian cities. This chapter presents a summary of the thesis, the conclusions drawn, and suggested areas for further research.

8.2 Conclusions and Findings

This thesis is the first published attempt to combine quantitative and qualitative methods to analyse office investment markets (triangulation approach). It also contains the first published demand and supply modelling study covering the South-East Asian region.

An initial review of the existing literature showed that little previous research has been carried out on the office investment market in this part of the world, particularly when compared to the amount of research that has focussed on European, American and Australian markets. This was surprising, considering the economic growth seen in the region over the past decade, and its increasing importance in the overall global economy. The main reason of this lack of research is likely to be the poor availability and quality of data.

Further literature review explored what methods could be used to model and describe the investment market dynamics in the region. This could be done by taking commonly accepted methods, used extensively to describe Western markets, and applying them to the five South-East Asian cities. Looking at the existing literature on Western office markets, it was clear that the research tended to fall into two separate camps: econometric modelling (quantitative), or using an institutional approach (qualitative).

In the European context, office market studies have focused on the use of a reduced (single-equation) quantitative modelling approach. These studies are based on a demand and supply framework, and use proxy variables for an office investment

market's demand and supply in order to identify the drivers of office investment market performance (mainly for office rental values).

The downside of such econometric models is that they assume efficient, mature markets, but neglect the institutional characteristics of the individual property markets. From the comparative European empirical reduced model results, London, Paris, Hamburg, and Frankfurt showed statistically significant results (i.e. they explained the market movement well) in the studies of Giussani et al 1993a, 1993b, and D'Arcy et al. 1994. Milan, Amsterdam, Brussels and Madrid tended to have statistically insignificant results in those comparative studies. None of the studies provided a full explanation of the reasons for the differences in results, or they only concluded that the insignificant results were probably caused by data limitations (both availability and quality). However, from the European property market maturity level studies (D'Arcy et al. 1994, Lee 2001), it can be seen that London, Paris and Frankfurt are mature markets and Madrid, Amsterdam, Brussels and Milan are in the category of emergent markets (or between emergent and mature). Comparing the European studies for maturity assessments and the modelling studies, it was clear that the demand-supply model framework works better for mature groups and the econometric modelling shows mixed results in emergent cities.

Given that econometric models all assume a fully mature/efficient market (Keogh et al. 1998), finding out the level of maturity in a property market should give an indication of how well econometric models might be expected to work: the more mature the property market, the better the results from the model.

No previous research has directly compared the level of maturity of a market with the performance of the econometric model for office markets.

As part of this study, a maturity survey was therefore undertaken on all five cities before econometric modelling was carried out, in order to examine the link between the level of maturity and the performance of the model.

For markets which are less than perfect competitive environments, it is important to identify the drivers of office market performance. If in immature markets, the price of

goods is a function of demand, supply and institutional constraints, then institutional constraints must be explored to explain the pricing dynamics of these markets.

Many studies have mentioned that the institutional structure of each property market is different from city to city, and that this might influence the behaviour of office markets, so these qualitative factors are an important supplement to the existing quantitative approach. Several studies carried out assessments of institutional environments in various ways, but none has explored a complete range of factors covering social, political, economic and legal aspects. Also, none of the previous studies linked market performance with the level of maturity and the modelling issues, although some markets have been widely regarded as having sound institutional environments, such as London and Paris (D'Arcy et al 1998, Lee 2000, Lee 2001).

Good (open, transparent, stable) institutional factors encourage investment activities, which create more demand in the market. They have a positive impact on the general economic condition which also influences the office market's demand and supply, such as increase the demand and economic growth through those investment activities. However, these factors are not easily converted to quantifiable variables.

The third element of this research involved conducting a survey of property professionals working in the South-East Asia region to find out which were the most important institutional factors affecting the performance of office investment markets, and to rate the factors for each city to compare the differing influences between each.

When looking at institutional factors, the level of maturity can be regarded as a reflection of a sub-category of economic and legal institutions in the property market. Therefore, a positive relationship should exist between the level of maturity, and the level of the institutional environment. In other words, office investment markets should mostly be influenced by demand and supply of the market in more mature and sound institutional environment markets. However, when modelling less mature markets, soft variables (such as institutional environment and constraints) should be added into the consideration to explain office investment markets more fully.

In summary:

For a mature market:

Office Investment Market Determinants = f (Market Demand, Market Supply)

For a less mature market:

Office Investment Market Determinants = f (Market Demand, Market Supply, Political Institutions, Legal Institutions, Economic/Financial Institutions, Social/Cultural Institutions)

This research attempts to bridge the gap between existing modelling studies and institutional approaches in office investment market analyses, using the five South-East Asian cities. In other words, econometric modelling is not the only tool and by itself is not enough to explore office market performance in immature markets.

The methodology adopted in this study is based on using a triangulation approach to investigate the drivers of office investment market performance in South-East Asian cities. This approach not only provides an econometric modelling analysis, it also provides an explanation and assessment of maturity and the institutional environment affecting office investment markets beyond the economic sphere. This triangulation methodology has never been used before to examine office market performance. This work has provided the most comprehensive lists of factors covering both quantitative and qualitative aspects affecting office investment market performance, and has proved the relationship between the two different categories of factors. The analytical framework adopted in this study proves to be valuable in the following aspect: it focuses on the relationships between the economy and office investment market performance, and institutional constraints and office investment markets. This research provides a more complete picture of the office investment market by facilitating both quantitative and qualitative methods. Although the two methodologies used in this research do not link together in a quantitative way, the results of the two approaches are related to each other: in cases which show statistically satisfactory modelling results, the institutional environments are of a sound nature; and cases with insignificant modelling results also have restricted investment institutional environments. Even though these institution factors have an

indirect impact on the modelling variables (such as real GDP, unemployment rates and floor space) which cannot be quantified, they play a significant role in the market dynamics of emergent markets.

The approaches for data acquisition used in this study have the following merits. First, they overcome the difficulties of gathering a range of consistent, comparable, and disaggregated office data and economic data. Second, they avoid the problem of inadequate and distorted information from many local statistics and second-hand data. Information from questionnaires completed by, and interviews with, local market researchers offered an understanding of institutional structures and development levels in the five cities.

There are five main findings in this research:

Firstly, macroeconomic factors have a positive and direct impact on office investment markets, especially on the demand-side proxy variables. The models of the South-East Asian cities appear to be consistent with the models for most European cities regarding the demand-side variables, especially for: unemployment rates, interest rates and prime lending rates. Hong Kong and Singapore have the most reliable and consistent results. None of the supply-side variables appear to be significant in the empirical studies. This has shown that the office investment markets are largely driven by the demand of the market (Chapter 6). This could be explained by the high economic growth that has driven the office investment market over the past decade in the region, and changes in unemployment rates could represent the general economic conditions. Although the supply side variable, changes in office floor space, does not have significant impact on office rental values in any cases, changes in interest rates and prime lending rates could also represent development side variables (high lending rates will increase the borrowing costs therefore shortage of supply), which do show significant impact on the office rental values in Taipei and Singapore, and might overshadow the impact of office floor space in the modelling process.

From the above, it can be seen that Western models can be used in the South-East Asian context, especially in the case of mature markets. This research has employed the basic demand and supply framework to examine the driver of the office rental

values. Although, there are limitations in the quality and availability of the data, it still shows the consistent results of the Western modelling studies. More sophisticated econometric techniques might need to be employed when longer time series and quality of the data are available in the South-East Asia region, especially for less mature markets.

However, there is one exceptional case in the modelling study: Bangkok. Office rental movement modelling remains something of an anomaly there. Although it only shows one significant factor, this failed the Granger Causality test. An explanation for this might centre on the role of institutional influences. Looking at the institutional environment in Bangkok, none of the factors are considered to be above moderate situation, which means all the institutional factors could have negative impacts on Bangkok's office market performance. Furthermore, those institutional factors' impacts might also influence the demand and supply factors in the equation. For example, lack of sound financial and economic structure would hold back the willingness of investors to get involved with local business in the country, which would in turn reduce the demand for office space. As a consequence, the rental value would also drop. However, the effects do not show in the existing modelling studies. Alternatively, the problem may simply reflect inadequate market coverage of the data used, which may also be the case to a lesser extent for Kuala Lumpur and Taipei, where some results are likewise poor or dubious. These problems might also be explained by significant rigidities in the operation of these office markets, their under-developed investment markets or unique market institutional structures (Chapter 7).

Secondly, in this research, Hong Kong and Singapore are shown as the most mature cities amongst the five cases and have the best modelling results, whereas Kuala Lumpur, Bangkok and Taipei are all in the category of "emergent" markets and they have statistically moderate or insignificant modelling results.

This result confirms that the level of property market maturity has a direct impact on the explanatory power of rental market modelling. In a mature market, there will be fewer restrictions on information efficiency, which is at the heart of modelling studies. As a consequence, the office investment market will not be as affected where there is a higher level of property market maturity (Chapter 5 and Chapter 6).

Thirdly, eighteen institutional factors were investigated, covering economic/financial, political, legal, and social/cultural institutional factors. The research reveals that economic/financial and legal institutional factors and political stability are regarded as the most important institutional factors affecting the dynamics of office investment market (Chapter 7). Social/cultural institutions are shown to have less impact.

In more mature markets, institutional factors have less impact on the office investment market, as there are fewer organisational restrictions imposed. In other words, office investment markets are mainly driven by demand and supply in markets with a more mature institutional environment. On the other hand, the office investment market will be affected by organisational factors in less mature institutional environment markets. Comparing the results of modelling and institutional environments, Hong Kong and Singapore are best in both assessments. This indicates that the performance of the modelling is closely related to the level of institutional constraints. However, although the modelling results could largely explain the office investment market in those sound institutional environments, there are still a small number of institutional factors which might affect those markets. For example, in both Hong Kong and Singapore, the strength and stability of the economy might be one factor, and the varying level of political stability in Hong Kong might be another. By contrast, institutional factors are most under-developed in Bangkok. Bangkok's office investment market seems highly influenced by these organisational factors, which cannot be explained by the modelling process (Chapter 6 and Chapter 7).

This confirms the arguments that "soft" variables remain a concern for office market modelling and investment decision-making, even in more mature property markets.

Fourthly, the level of property maturity has a correlation with the level of the institutional environment. In a mature property market, there are fewer institutional constraints, and in a less mature property market, the institutional environment restricts market activity (Chapter 7), and so restricted financial markets and foreign investment regulation, immature financial and economic structure, unstable political

situation, and poor transparency of the market and legal system constrain investment activities and investment decision-making.

This has been confirmed by the empirical results. Hong Kong and Singapore are both considered to be mature markets and also have the soundest institutional environments among the five cities, whereas Kuala Lumpur, Taipei and Bangkok are considered to be emergent markets and offer less sound institutional environments, which indicates more institutional constraints.

It would appear that performing an institutional analysis could be used as an alternative route to identifying the level of maturity of a market.

Fifthly, owing to the limitations of econometric modelling, the impact of institutional factors on office investment markets, particularly economic, legal and political, should also be considered when seeking to explain market dynamics. A new form becomes apparent for the determinants of office investment markets in South-East Asia, which are: demand-side macroeconomic factors, and financial/economic institutions, legal institutions and political stability.

In South-East Asian emergent markets, the main drivers of office investment markets performance are as stated above. However, this study suggests that in South-East Asian mature markets, office investment market performance is driven by reduced demand-side variables of macroeconomic factors, and the strength and stability of the economy.

A key question is how these findings can be applied in order to improve investment market forecasting and analysis.

In the first instance, it is necessary to carry out a maturity analysis, which will indicate whether it is worth building an econometric model of the market in question. For non-mature markets, the next logical step would be to attempt to build a model which incorporates the results from institutional analysis with the econometric data, to see if it produces a more accurate model. This could be done by including variables in the model for each significant institutional factor. It would be important to choose

the correct type of variable for each factor. For example, political stability could be included in the model as a dummy variable relating to whether or not a 'political event' had occurred at a particular time. For other factors, an index might be more appropriate. However, for such a model to be constructed and tested, much more detailed data are needed. The institutional data collected for this research are fairly restricted, being a summary of perceptions over a ten-year period taken at one point in time, and they were not collected quarterly or annually like the macro-economic data.

This empirical study confirms that the more mature a market is, the better its institutional environment is for investment (more stable, less corrupt, more liberalised, and more transparent). In an institutional environment which is good for investment, there are fewer organisational constraints on the market and, as a result, the modelling should better represent the direct interaction of office investment markets and macroeconomic factors. However, in less mature markets, macroeconomic factors play a less important role, and institutional factors have a stronger influence on the rental determinants.

8.3 Further Research

A number of potential avenues for future research are indicated by the work presented above.

First, regional demand and supply indicators should improve the robustness of models and will significantly improve the ability of models to explain rental value changes in those markets with unique market rules. The problems encountered gathering reliable office data and economic data in local property markets are important issues which need to be resolved, or future research will be somewhat restricted.

Econometric analysis can often be divided into time-series and cross-sectional analysis. This research has carried out cross-sectional analysis and time-series analysis individually in Chapter Six. Future research could also employ panel analysis, which means that time-series analysis and cross-sectional analysis are conducted simultaneously on the same sample to see the differences in the results.

Previous modelling studies (Keogh et al. 1991, Keogh et al. 1998) have suggested that yields should be used to better represent the performance of investment markets. However, the absence of yield data for most emergent markets makes it difficult to carry out the research. Yield forecasts could be explored in future research covering markets where the data are available, such as Singapore. However, yield data has only ever been used in two previous studies (RICS 1994, Keogh et al. 1998), both covering the London office market, and neither study showed statistically significant results.

As institutional factors have less impact in the mature property markets covered in this research, it should be possible to improve the accuracy of modelling in these markets through the use of more detailed and longer time series data (which may be more readily available for these mature markets), and more sophisticated statistical methods.

This research has confirmed twelve important institutional factors which are believed to have stronger impacts on the behaviour of South-East Asian office investment markets. However, the research does not incorporate these factors into the econometric modelling to test whether they can significantly improve the explanatory power of the models. A future research project could attempt to determine substitute variables for those institutional factors, and incorporate them into models for emergent property markets.

The approach presented here might also be used for analysing other emergent property markets outside South-East Asia, so another avenue for future research would be to test this approach on other emergent markets. The relative importance of institutional factors might be different in other property markets, and such a study could investigate the ranking and weighting of institutional factors in different locations. For example, Shanghai, Beijing, Jakarta, and Manila are likely to be below emergent status in terms of market maturity. It might be useful to pay more attention to institutional environment analysis in those cities while examining office market performance. On the other hand, Seoul and Tokyo seem likely to be in upper emergent status in terms of the market maturity. The political instability and restrictions of foreign investment in those two cities are likely to have an impact on

the results of the modelling work; therefore, the triangulation methodology presented here could be employed in those cities.

This research provides a starting point for comparative research covering office investment markets in South-East Asia. Additionally, it is unique in employing quantitative and qualitative methods for analysing office investment markets. It is hoped that the findings presented here will form a solid foundation for future research in the region; and that they demonstrate how using a combined quantitative and qualitative approach can lead to an improved understanding of the dynamics of office investment markets.

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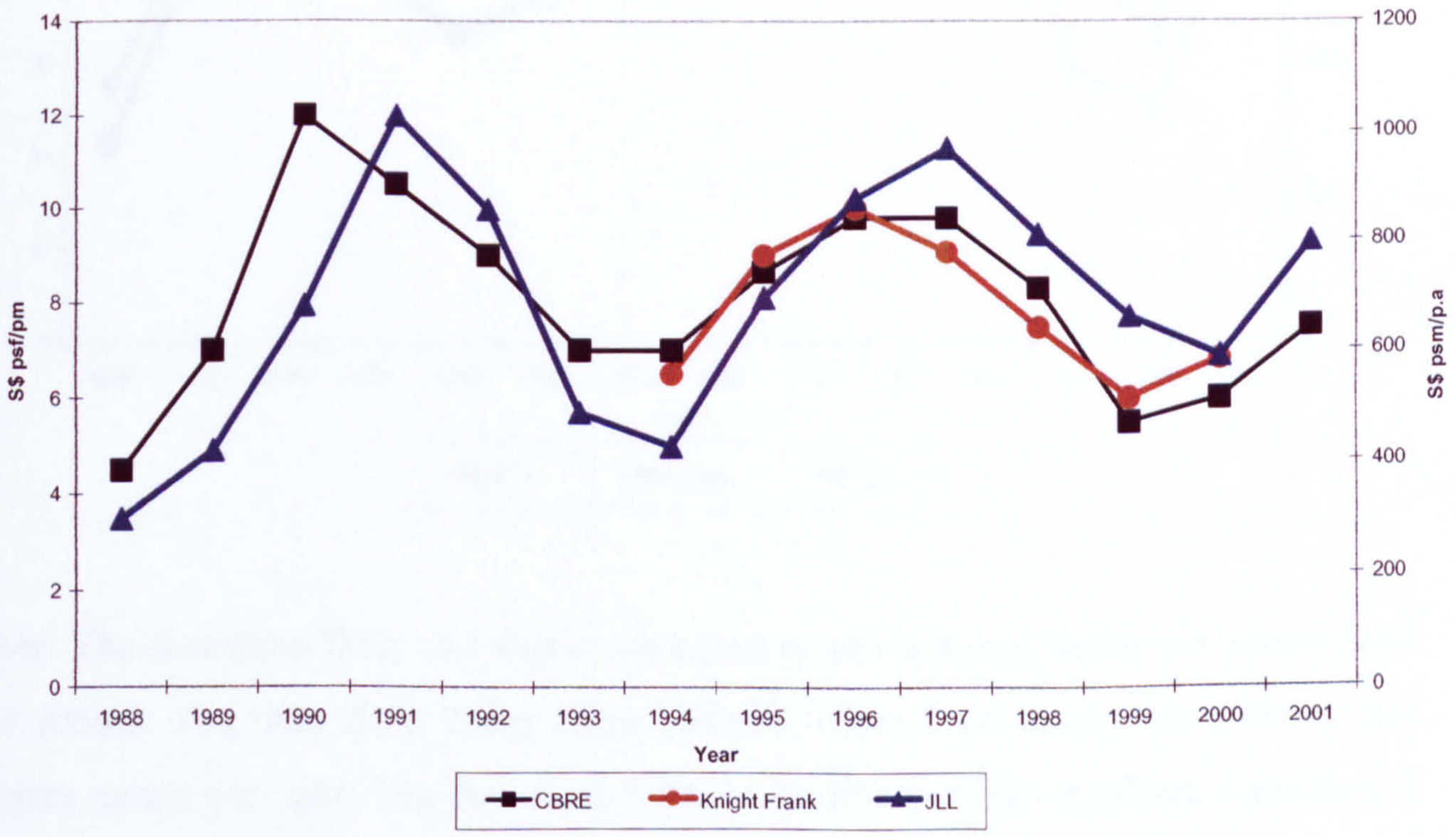
APPENDICES

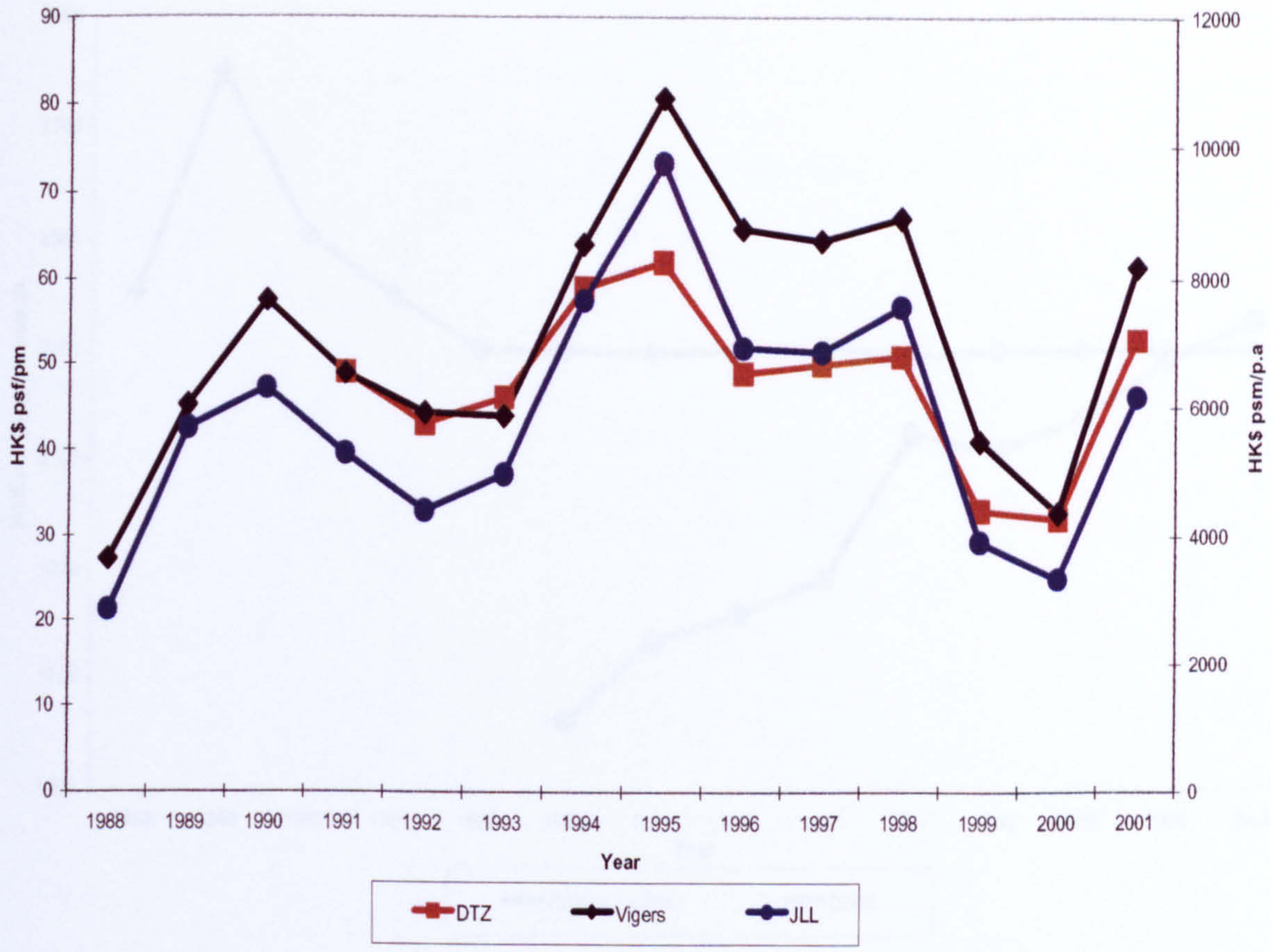
Appendix 1 Prime Office Rental Movements in Five South-East Asian Cities

Singapore Prime Office Rental Movement

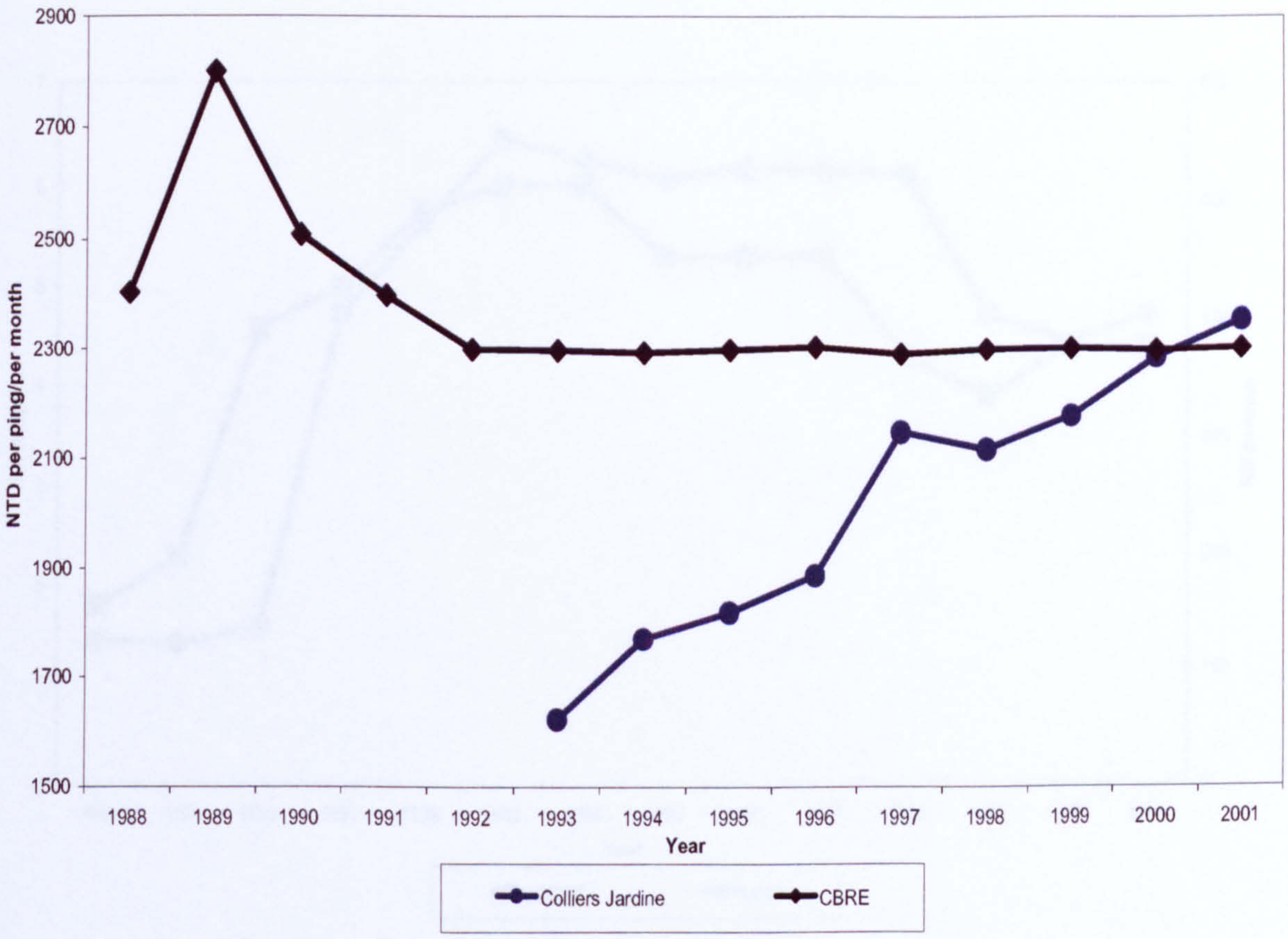


Note: The data for CB Richard Ellis and Knight Frank are based on Singapore Dollar per square feet/ per month. The data from Jones Lang LaSalle is based on Singapore Dollar per square metre/ per year.

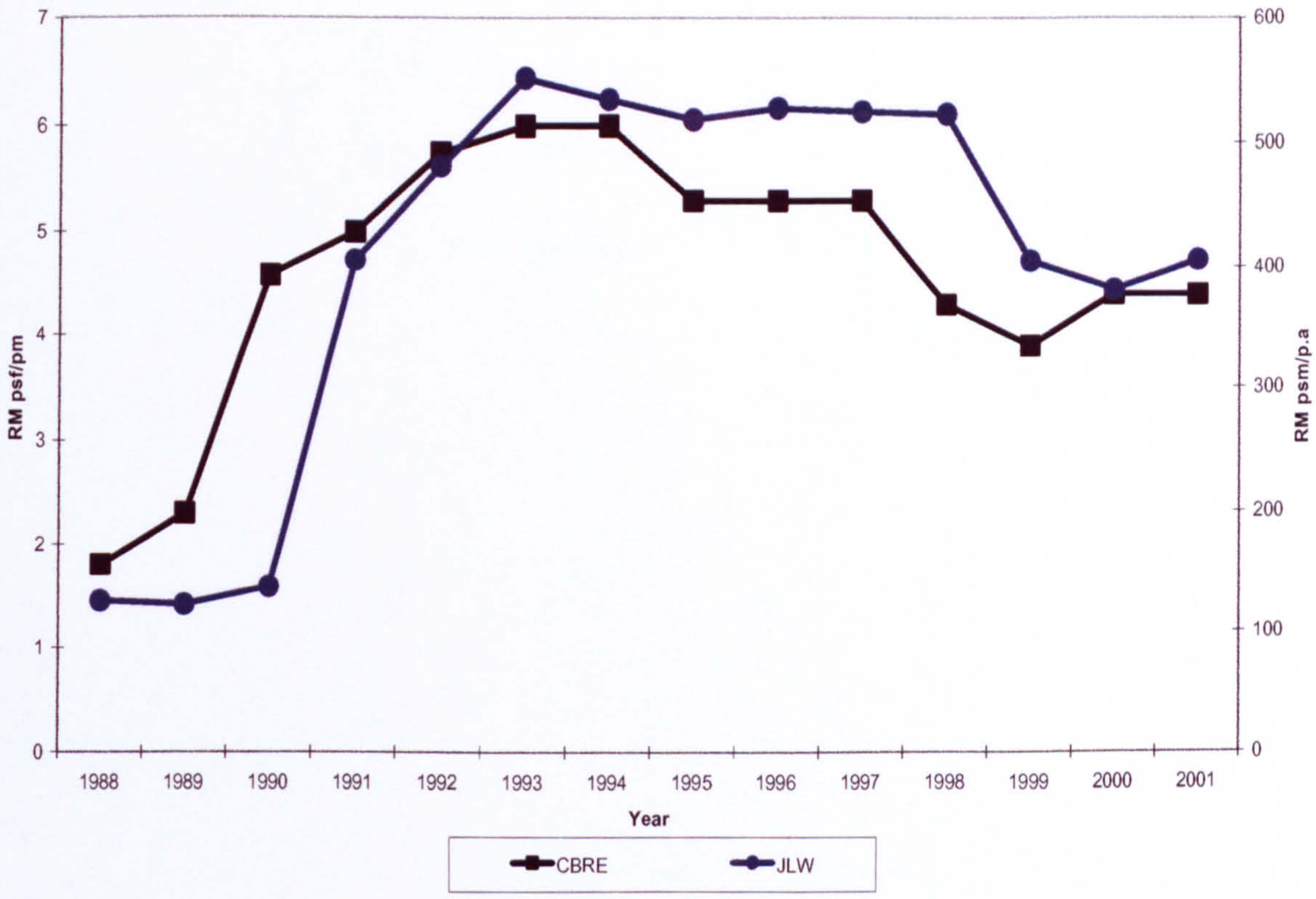
Hong Kong Prime Office Rental Movement



Note: The data from DTZ and Vigers are based on Hong Kong Dollar per square feet/ per month. The data from Jones Lang LaSalle is based on Hong Kong Dollar per square metre/ per year. The data from Colliers Jardine is relatively short; therefore, it is not included in this figure.

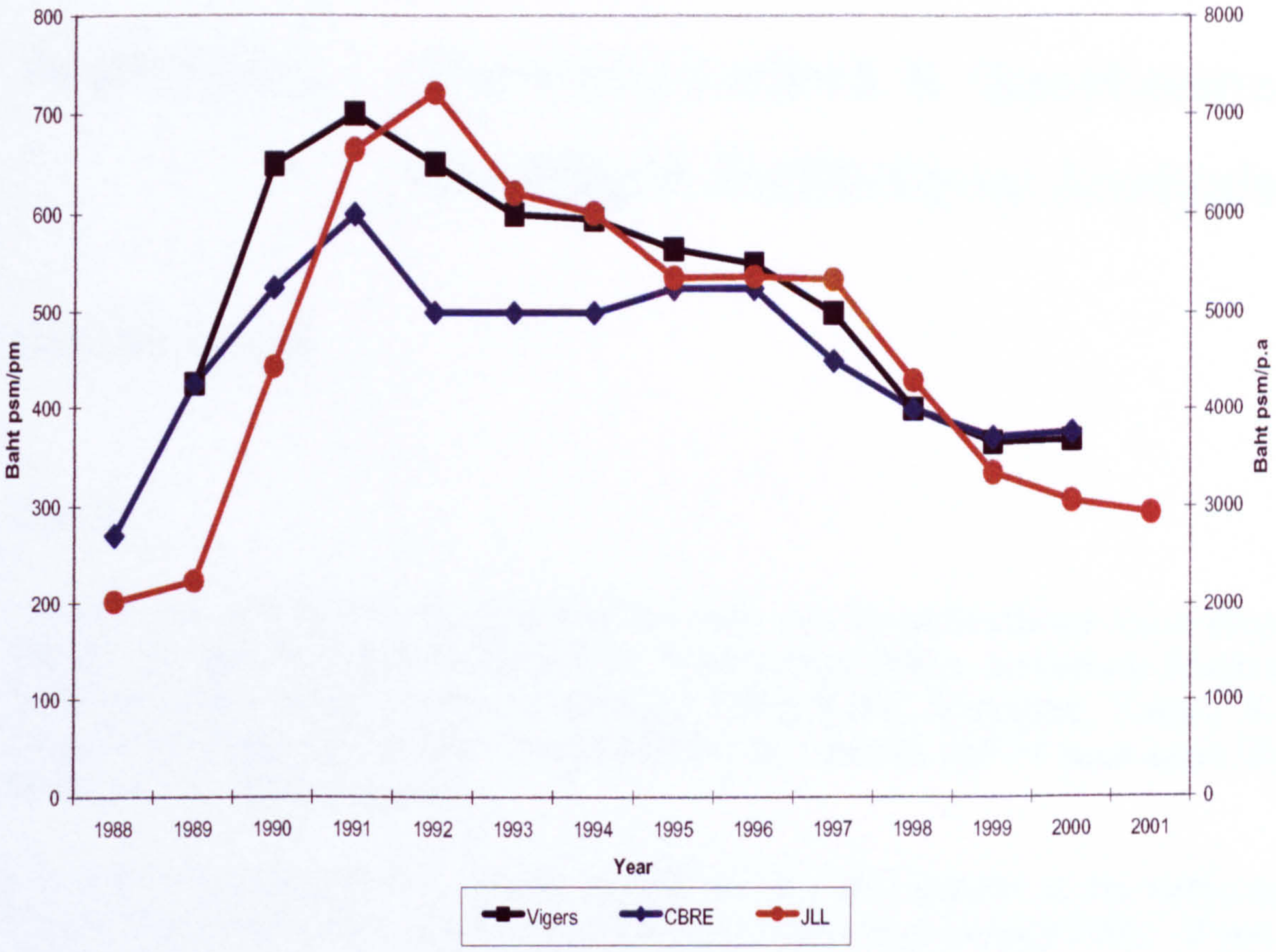

Taipei Prime Office Rental Movement
NTD per ping/per month
2900
2700
2500
2300
2100
1900
1700
1500
1988
1989
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
Year
Colliers Jardine
CBRE

Kuala Lumpur Prime Office Rental Movement



Note: The data from CB Richard Ellis is based on RM per square feet/ per month. The data from Jones Lang LaSalle is based on RM per square metre/ per year.

Bangkok Prime Office Rental Movement



Note: The data from CB Richard Ellis and Vigers are based on Baht per square metre/ per month. The data from Jones Lang LaSalle is based on Baht per square metre/ per year.

Appendix 2 Covering Letters & Questionnaire: Maturity & Institutional Analysis

Covering Letter A

Dear Sir,

About a year ago you kindly provided me with data about Southeast Asian property markets for my PhD thesis (Factors of Determining Office Investment Markets in Southeast Asian Cities with reference to Hong Kong, Singapore, Taipei, Kuala Lumpur and Bangkok). It was very helpful for my research and I'd once again like to thank you for sending it to me.

I have since produced some useful results which I will present at the forthcoming Pacific Rims Real Estate Society conference in Brisbane in January 2003. If you are interested, I would be happy to email or post my results to you.

After attending the PRRES conference, during February next year, I will be visiting Singapore, Hong Kong, Taipei, Kuala Lumpur and Bangkok to carry out field work.

As I am currently doing my qualitative research, I need to find some property researchers in those cities willing to complete my questionnaire and for a brief interview.

I am therefore writing to ask whether you might be able to spare the time to meet me while I am in (City). Alternatively, if you are attending PRRES too, then perhaps we could arrange to meet there. The questionnaire and interview should not take more than about 30 minutes. If not, could you please kindly complete the questionnaire and can be returned it via post or fax.

I will be in <City> between (dd/mm/2003) and (dd/mm/2003).

As I will be working in several countries in the next few months, it will be easiest if you contact me by email (wchin@brookes.ac.uk) or telephone (+44 7775 995292).

Any help you can give me will be very much appreciated. Thank you.

Yours sincerely,

Henry Wei CHIN

Department of Real Estate Management
Oxford Brookes University
Oxford, OX3 0BP
UK
Tel: +44 (0) 1865 483475
Fax: +44 (0) 1865 483927
Mobile: +44 (0)7775 995292

Covering letter B

Dear Sir,

(someone) of (company)'s London office has recommended I contact you.

I am undertaking research at Oxford Brookes University, where I am in the final stage of my PhD covering the behaviour of office investment markets in South-east Asia. My work is principally concerned with the determinants of office investment markets in South-east Asia.

As part of my thesis, it is necessary to conduct a survey and interview people who work in property market research in South-east Asia, and my understanding is that this is your field.

In January 2003 I will travel to Australia for the PRRES conference, and then, during February, I will visit Hong Kong, Singapore, Taipei, Kuala Lumpur and Bangkok for my field work and interviews.

This questionnaire will take less than 15 minutes of your time to complete and can be returned via post, fax or email.

I would be extremely grateful if you could spare me about 30 minutes of your time to be interviewed and to complete my questionnaire. I will be visiting (City) between dd/mm/2003 and dd/mm/2003. As I will be working in several countries in the next few months, it will be easiest if you contact me by email (wchin@brookes.ac.uk) or telephone (+44 777 599 5292)

Replies are coded to ensure confidentiality and any direct quotations taken from the findings will not be attributed to individuals. My thesis, when finished will be deposited in the university library.

I would be happy to send you my research results and my conference papers (2002 and 2003 PRESS paper).

Thanking you in advance for your co-operation.

Yours sincerely,

Henry Wei CHIN
Department of Real Estate Management
Oxford Brookes University, Oxford, OX3 0BP, UK
Tel: +44 (0) 1865 483475
Fax: +44 (0) 1865 483927

Reminder Letter

Dear Sir

A few weeks ago I contacted you about the research I am undertaking at Oxford Brookes University. In that earlier message I explained that I am in the final stage of my PhD covering the behaviour of office investment markets in South-east Asia. This research is principally concerned with the determinants of office investment markets in South-east Asia.

As part of my thesis, it is necessary to conduct a survey and interview people who work in property market research in South-east Asia, and my understanding is that this is your field.

To date I have not heard back from you, and I realise there may be a number reasons for this, including general workload. If you still find that you are unable to assist, I hope you will be able to let me have the contact details of the person in your office to whom you are referring this request.

I do however hope that you will still be able to complete the short questionnaire and to be interviewed, as I have been led to believe that you have an excellent knowledge of this area.

The questionnaire will take less than 15 minutes to complete, and can be returned by post, fax or email.

In January 2003 I will travel to Australia for the PRRES conference, and then, during February, I will visit Hong Kong, Singapore, Taipei, Kuala Lumpur and Bangkok for my field work and interviews. I would be extremely grateful if you could spare me about 30 minutes of your time to be interviewed when I visit Taipei between 11/3/2003 and 26/3/2003. If not, would you please kindly return my questionnaire via post, fax or email?

As I will be working in several countries in the next few months, it will be easiest if you contact me by email (wchin@brookes.ac.uk) or telephone (+44 777 599 5292)

Replies are coded to ensure confidentiality and any direct quotations taken from the findings will not be attributed to individuals. On completion my thesis will be deposited in the university library.

I would be happy to send you my research results and my conference papers (2002 and 2003 PRRES paper).

Any help you can give me will be very much appreciated.

I look forward to hearing from you.

Best wishes for a successful and prosperous 2003.

Yours sincerely,

Henry Wei CHIN

Department of Real Estate Management
Oxford Brookes University
Oxford,
OX3 0BP, U.K.
Tel: +44 (0) 1865 483475
Fax: +44 (0) 1865 483927
Mobile: +44 (0)7775 995292

Meeting Letter

Dear Sir,

It was good of you to agree to be interviewed about the office market in the previous contact. I am very grateful about the interview during my stay in (City) from (dd/mm/2003) to (dd/mm/2003).

Your promise to help is much appreciated and very important to the outcome of the research I am undertaking. The interview will take approximately 30 minutes.

I will try to be as flexible as possible, so if you let me know the day and time that suits you best, I will try to plan the rest of my visit around our appointment.

As soon as I hear from you, I will let me know if the appointment you suggest is convenient. If your suggested time is impossible for me, I also contact you, in the hope we can re-organise.

I look forward to hearing from you shortly, and to seeing you in the not too distant future.

Regards,
Henry Wei CHIN
Department of Real Estate Management
Oxford Brookes University
Oxford
OX3 0BP
UK

Tel: +44 1865 48 3475
Fax: +44 1865 48 3927
Mobile: +44 7775 995292

Questionnaire

Questionnaire: Evaluate the Property Market's Institutional Level in South-East Asia

This questionnaire is for my PhD thesis. I would be grateful if you could complete and send it back to me. It might take you around 15 minutes. If you would like to receive the results, or if you have any questions, feel free to email me. Thank you very much for your time.

Wei CHIN (Henry) B.A. (Taipei) M.Sc. (Reading)
Department of Real Estate Management
Oxford Brookes University
Oxford, OX3 0BP, U.K.

Tel: +44 (0) 1865 483475
Fax: +44 (0) 1865 483927
Email: wchin@brookes.ac.uk

Part 1: Basic Information

1. In which country is your business based? .

---

2. Has your company carried out any research into property markets in South-east Asian cities?

⇒ ***Mark a cross "X" in the relevant box***

Yes	(please go to 3a)
No	(please go to 3b)

3a. If yes, which city/cities did your company research in South-east Asia?

⇒ ***Mark a cross "X" in the relevant box***

Bangkok		Hong Kong	
Kuala Lumpur		Singapore	
Taipei			

Others (specify) _____

3b. If not, which of the following are you most likely to consider over the next 12 months? (Please go to Question 5)

⇒ ***Mark a cross "X" in the relevant box***

Bangkok		Hong Kong	
Kuala Lumpur		Singapore	
Taipei			

Others (specify) _____

4. Please rank the following cities in terms of the ease with which you are able to obtain investment market data.

⇒ ***Rank the following cities 1 to 5 (1^{st} =easiest, 5^{th} = most difficult)***

	Bangkok	*H.K*	*K.L*	*Singapore*	*Taipei*
Rank (1 to 5)					

5. With which of the following property markets are you familiar?

⇒ ***Mark a cross "X" in the relevant box***

Bangkok	
Kuala Lumpur	
Taipei	

Hong Kong	
Singapore	

Others (specify) _____

Part 2: Markets Prospects

6. What are your views on the prospects for overall economic growth for the following cities in the next 12 months?

⇒ ***Mark a cross "X" in the relevant category for each city.***

	0 Do Not Know	*1 Very Strong Positive Growth (Over 4%)*	*2 Positive Growth (0% to 4%)*	*3 No Growth (0%)*	*4 Negative Growth (0% to -4%)*	*5 Very Strong Negative Growth (Over -4%)*
Bangkok						
H.K.						
K.L						
Singapore						
Taipei						

7. What are your views on the prospects for growth of the office markets for these cities in the next 12 months?

⇒ ***Mark a cross "X" in the relevant category for each city.***

	0 Do Not Know	*1 Very Strong Positive Growth (Over 4%)*	*2 Positive Growth (0% to 4%)*	*3 No Growth (0%)*	*4 Negative Growth (0% to -4%)*	*5 Very Strong Negative Growth (Over -4%)*
Bangkok						
H.K.						
K.L						
Singapore						
Taipei						

8a. What is the "availability" of property information and data for the cities?

⇒ ***Mark a cross "X" in the relevant category for each city.***

	0 Do not Know	*1 Extremely Good*	*2 Good*	*3 Fair*	*4 Poor*	*5 Extremely Poor*
Bangkok						
H.K.						
K.L						
Singapore						
Taipei						

8b. What is the "quality" of property information and data for the cities?

⇒ ***Mark a cross "X" in the relevant category for each city.***

	0 Do not Know	*1 Extremely Good*	*2 Good*	*3 Fair*	*4 Poor*	*5 Extremely Poor*
Bangkok						
H.K.						
K.L						
Singapore						
Taipei						

9. In terms of the property market's maturity level, evaluate the following criteria in each city in the past 10 years.

⇒ ***Mark each box 1 to 5 (1=very well developed or very mature, 5=very limited development or very immature):***

	Bangkok	*H.K*	*K.L*	*Singapore*	*Taipei*
Market Openness					
Property Services Professional Level					
Presence of Property Intermediaries					
User and Investors Opportunity					
Market Value					
Flexibility					
Market Information Standardisation					
Market Information Availability					
Development Stability					
Quality of Property Products					

10. In terms of property investment, estimate the different risk categories for each city.

⇒ ***Mark each box 1 to 5 (1=very high risk, 5=very low risk):***

	Currency Risk	*Political Risk*	*Transparency Risk*	*Legal Regulation Legislation Risk*	*Economic/Financial Risk*
Bangkok					
H.K					
K.L					
Singapore					
Taipei					

11. Indicate how critical the following factors are in influencing office markets in general?

⇒ ***Mark a cross "X" in the relevant risk category for each factor.***

	Critical	*Very Important*	*Important*	*Less Important*	*Unimportant*
Political stability					
Currency exchange stability and convertibility					
Restrictions and Regulations on foreign investors					
Legal framework					
Transparency of legislation system					
Legal Regulation					
Sound financial/economic structure (creditworthiness of the country)					
Liberalisation of financial markets					
The Strength and Stability of the Economy					
Level of Transparency of Market					
Professional Level					
Perceived corruption level					
Government interventionist					
Tax					
Urban Form (Planning)					
Public Infrastructure Level					
Cultural Difference business or ethnic					

12. Evaluate the Institutional factors from Q.10 for each of the cities

⇒ ***Mark each box 1 to 5 (1=very good, 5=very poor) or leave blank if unknown:***

	Bangkok	*H.K*	*K.L*	*Singapore*	*Taipei*
Political stability					
Currency exchange stability and convertibility					
Restrictions and Regulations on foreign investors					
Legal framework					
Transparency of legislation system					
Legal Regulation					
Sound financial/economic structure (creditworthiness of the country)					
Liberalisation of financial markets					
The Strength and Stability of the Economy					
Level of Transparency of Market					
Professional Level					
Perceived corruption level					
Government interventionist					
Tax					
Urban Form (Planning)					
Public Infrastructure Level					

13. Based on your knowledge and experience, what is the level of property market maturity of the cities?

⇒ ***Mark a cross "X" in the relevant category for each city.***

(Market maturity is a term used both frequently and loosely by participants in the property market to describe a level of development or evolution achieved by a market)

	Mature market	*Emergent market*	*Emerging market*
Bangkok			
H.K.			
K.L			
Singapore			
Taipei			

Part 3: If you would like to receive results of this research, please leave your contact details (Optional).

Name: _____

Organisation: _____

Email

Address: _____

Appendix 3 ANOVA Results: Market Openness

- Hong Kong and Singapore

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
Column 1	29	43	1.482759	0.687192
Column 2	27	42	1.555556	0.25641

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	0.074097	1	0.074097	0.15444	**0.695875**	4.01954091
Within Groups	25.90805	54	0.479779			
Total	25.98214	55				

- Kuala Lumpur and Bangkok

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
Column 1	28	94	3.357143	0.978836
Column 2	25	84	3.36	0.656667

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	0.000108	1	0.000108	0.00013	**0.990936**	4.0303924
Within Groups	42.18857	51	0.827227			
Total	42.18868	52				

Appendix 4 ANOVA Results: Quality of Property Professional Services

- Hong Kong and Singapore

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
Column 1	27	39	1.444444	0.410256
Column 2	25	40	1.6	0.416667

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	0.314103	1	0.314103	0.759926	**0.387519**	4.03431
Within Groups	20.66667	50	0.413333			
Total	20.98077	51				

- Hong Kong and Bangkok

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
Column 1	23	64	2.782609	0.905138
Column 2	27	39	1.444444	0.410256

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	22.24029	1	22.24029	34.90988	**3.46E-07**	4.042652
Within Groups	30.57971	48	0.637077			
Total	52.82	49				

- Hong Kong and Taipei

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
Column 1	21	66	3.142857	0.828571
Column 2	27	39	1.444444	0.410256

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	34.0744	1	34.0744	57.54524	**1.21E-09**	4.051749
Within Groups	27.2381	46	0.592133			
Total	61.3125	47				

- Kuala Lumpur and Taipei

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
Column 1	21	66	3.142857	0.828571
Column 2	25	70	2.8	1.166667

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	1.341615	1	1.341615	1.324415	**0.256017**	4.061706
Within Groups	44.57143	44	1.012987			
Total	45.91304	45				

Appendix 5 ANOVA Results: Presence of Property Intermediaries

- Hong Kong and Singapore

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
Column 1	27	37	1.37037	0.319088
Column 2	25	39	1.56	0.59

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	0.466781	1	0.466781	1.039309	**0.31289**	4.03431
Within Groups	22.4563	50	0.449126			
Total	22.92308	51				

- Singapore and Bangkok

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
Column 1	25	39	1.56	0.59
Column 2	24	64	2.666667	0.753623

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	14.99646	1	14.99646	22.38041	**2.08E-05**	4.0471
Within Groups	31.49333	47	0.670071			
Total	46.4898	48				

- Taipei and Kuala Lumpur

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
Column 1	22	66	3	0.666667
Column 2	26	70	2.692308	0.781538

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	1.128205	1	1.128205	1.547401	**0.219821**	4.051749
Within Groups	33.53846	46	0.729097			
Total	34.66667	47				

Appendix 6 Cluster Analysis: Professional Level & the Presence of Property Intermediaries

From the results of the cluster analysis between the professional level and the presence of property intermediaries, it is clear to see that the quality of property professional services in Hong Kong and Singapore and the presence of property intermediaries in Hong Kong and Singapore are one cluster if the number of clusters are chosen to be two. The rest of the three cities can be grouped as another cluster. Although there are some missing data in this analysis, it still can show that the greater the presence of property intermediaries, the higher the property professional level.

Average Linkage (Between Groups)

- Agglomeration Schedule

Stage	Cluster Combined		Coefficients	Stage Cluster First Appears		Next Stage
	Cluster 1	Cluster 2		Cluster 1	Cluster 2	
1	7	9	1.000	0	0	5
2	2	4	3.000	0	0	5
3	5	10	6.000	0	0	6
4	6	8	6.000	0	0	7
5	2	7	7.500	2	1	9
6	1	5	10.000	0	3	8
7	3	6	12.000	0	4	8
8	1	3	19.111	6	7	9
9	1	2	37.250	8	5	0

- Vertical Icicle

# clusters	Case																		
	SG Presence		HK Presence		SG Professional		HK Professional		KL Presence		BKK Presence		KL Professional		TPE Presence		TPE Professional		BKK Professional
1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
2	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X
3	X	X	X	X	X	X	X		X	X	X	X	X		X	X	X	X	X
4	X	X	X	X	X	X	X		X	X	X		X		X	X	X	X	X
5	X	X	X	X	X	X	X		X	X	X		X		X	X	X		X
6	X	X	X		X	X	X		X	X	X		X		X	X	X		X
7	X	X	X		X	X	X		X		X		X		X	X	X		X
8	X	X	X		X	X	X		X		X		X		X		X		X
9	X	X	X		X		X		X		X		X		X		X		X

Appendix 7 ANOVA Results: User and Investor Opportunity

- Hong Kong Singapore

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
Column 1	27	48	1.777778	0.794872
Column 2	25	44	1.76	0.523333

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	0.004103	1	0.004103	0.006174	**0.937686**	4.03431
Within Groups	33.22667	50	0.664533			
Total	33.23077	51				

- Hong Kong and Bangkok

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
Column 1	23	62	2.695652	0.675889
Column 2	27	48	1.777778	0.794872

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	10.46377	1	10.46377	14.13377	**0.000462**	4.042652
Within Groups	35.53623	48	0.740338			
Total	46	49				

- Singapore and Taipei

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
Column 1	25	44	1.76	0.523333
Column 2	21	68	3.238095	0.890476

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	24.93482	1	24.93482	36.12609	**3.26E-07**	4.061706
Within Groups	30.36952	44	0.690216			
Total	55.30435	45				

Appendix 8 ANOVA Results: Market Value Stability and Reality

- Taipei and Singapore

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
Column 1	24	46	1.916667	1.471014
Column 2	20	56	2.8	0.905263

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	8.512121	1	8.512121	7.005403	**0.011391**	4.072654
Within Groups	51.03333	42	1.215079			
Total	59.54545	43				

- Kuala Lumpur and Hong Kong

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
Column 1	26	43	1.653846	1.115385
Column 2	24	73	3.041667	0.911232

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	24.03705	1	24.03705	23.62221	**1.3E-05**	4.042652
Within Groups	48.84295	48	1.017561			
Total	72.88	49				

Appendix 9 ANOVA Results: Property Investment Flexibility

- Hong Kong and Singapore

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
Column 1	26	47	1.807692	0.881538
Column 2	24	49	2.041667	0.911232

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	0.683205	1	0.683205	0.762704	**0.386832**	4.042652
Within Groups	42.99679	48	0.895767			
Total	43.68	49				

- Hong Kong and Taipei

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
Column 1	20	67	3.35	0.976316
Column 2	26	47	1.807692	0.881538

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	26.8898	1	26.8898	29.14994	**2.56E-06**	4.061706
Within Groups	40.58846	44	0.922465			
Total	67.47826	45				

Appendix 10 ANOVA Results: Property Information Availability

- Singapore and Kuala Lumpur

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
Column 1	25	73	2.92	0.826667
Column 2	25	36	1.44	0.34

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	27.38	1	27.38	46.93714	**1.24E-08**	4.042652
Within Groups	28	48	0.583333			
Total	55.38	49				

- Singapore and Hong Kong

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
Column 1	27	37	1.37037	0.319088
Column 2	25	36	1.44	0.34

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	0.062934	1	0.062934	0.191217	**0.663789**	4.03431
Within Groups	16.4563	50	0.329126			
Total	16.51923	51				

- Hong Kong and Kuala Lumpur

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
Column 1	27	37	1.37037	0.319088
Column 2	25	73	2.92	0.826667

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	31.1714	1	31.1714	55.39357	**1.22E-09**	4.03431
Within Groups	28.1363	50	0.562726			
Total	59.30769	51				

Appendix 11 Cluster Analysis: Informational Availability & the Presence of Property Intermediaries

From the results of the cluster analysis between informational availability and the presence of property intermediaries, it is clear to see that property information availability in Hong Kong and Singapore and the presence of property intermediaries in Hong Kong and Singapore are one cluster if the number of clusters are selected two. The rest of the three cities can be grouped as another cluster. Although there are some missing data in this analysis, it still shows a correlation between a high presence of property intermediaries and a high level of market information availability.

Average Linkage (Between Groups)

- Agglomeration Schedule

Stage	Cluster Combined		Coefficients	Stage Cluster First Appears		Next Stage
	Cluster 1	Cluster 2		Cluster 1	Cluster 2	
1	2	4	1.000	0	0	3
2	7	9	3.000	0	0	3
3	2	7	4.500	1	2	9
4	1	3	6.000	0	0	7
5	6	8	11.000	0	0	6
6	6	10	13.500	5	0	7
7	1	6	16.000	4	6	8
8	1	5	18.600	7	0	9
9	1	2	43.333	8	3	0

- Vertical Icicle

Number of clusters	Case																			
	SG Info Avail		HK Info Avail		SG Property Presence		HK Property Presence		TPE Property Presence		TPE Info Avail		KL Info Avail		BKK Info Avail		KL Property Presence		BKK Property Presence	
1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
2	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	
3	X	X	X	X	X	X	X		X		X	X	X	X	X	X	X	X	X	
4	X	X	X	X	X	X	X		X		X	X	X	X	X		X	X	X	
5	X	X	X	X	X	X	X		X		X		X	X	X		X	X	X	
6	X	X	X	X	X	X	X		X		X		X		X		X	X	X	
7	X	X	X	X	X	X	X		X		X		X		X		X		X	
8	X	X	X		X	X	X		X		X		X		X		X		X	
9	X		X		X	X	X		X		X		X		X		X		X	

Appendix 12 Cluster Analysis: Informational Quality and the Professional Level

From the results of the cluster analysis between information quality and the level of property professional services, it is clear to see that property information quality in Hong Kong and Singapore and the level of property professional services in Hong Kong and Singapore are one cluster if the number of clusters are two. The rest of the three cities can be grouped as another cluster. Although there are some missing data in this analysis, it still shows a correlation between a high level of property professional services and a high quality of market information.

Average Linkage (Between Groups)

- Agglomeration Schedule

Stage	Cluster Combined		Coefficients	Stage Cluster First Appears		Next Stage
	Cluster 1	Cluster 2		Cluster 1	Cluster 2	
1	7	9	3.000	0	0	4
2	2	4	3.000	0	0	4
3	3	8	6.000	0	0	7
4	2	7	6.000	2	1	9
5	1	6	7.000	0	0	6
6	1	5	9.500	5	0	8
7	3	10	12.000	3	0	8
8	1	3	15.000	6	7	9
9	1	2	33.333	8	4	0

- Vertical Icicle

Number of clusters	Case																		
	SG Info Quality	HK Info Quality	SG Profession	HK Profession	TPE Info Quality	KL Info Quality	KL Profession		TPE Profession		BKK Info Quality		BKK Profession						
1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
2	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X
3	X	X	X	X	X	X	X		X	X	X	X	X		X	X	X	X	X
4	X	X	X	X	X	X	X		X		X	X	X		X	X	X	X	X
5	X	X	X	X	X	X	X		X		X	X	X		X		X	X	X
6	X	X	X	X	X	X	X		X		X	X	X		X		X		X
7	X	X	X		X	X	X		X		X	X	X		X		X		X
8	X	X	X		X	X	X		X		X		X		X		X		X
9	X	X	X		X		X		X		X		X		X		X		X

Appendix 13 ANOVA Results: Development Stability

- Hong Kong and Singapore

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
Column 1	25	41	1.64	0.49
Column 2	23	36	1.565217	0.529644

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	0.066993	1	0.066993	0.131627	**0.718413**	4.051749
Within Groups	23.41217	46	0.50896			
Total	23.47917	47				

- Taipei and Singapore

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
Column 1	23	36	1.565217	0.529644
Column 2	19	51	2.684211	0.561404

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	13.02828	1	13.02828	23.95186	**1.66E-05**	4.084746
Within Groups	21.75744	40	0.543936			
Total	34.78571	41				

- Singapore and Bangkok

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
Column 1	23	36	1.565217	0.529644
Column 2	21	71	3.380952	0.647619

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	36.1909	1	36.1909	61.7779	**8.79E-10**	4.072654
Within Groups	24.60455	42	0.585823			
Total	60.79545	43				

Appendix 14 ANOVA Results: Quality of Property Product

- Singapore and Bangkok

SUMMARY

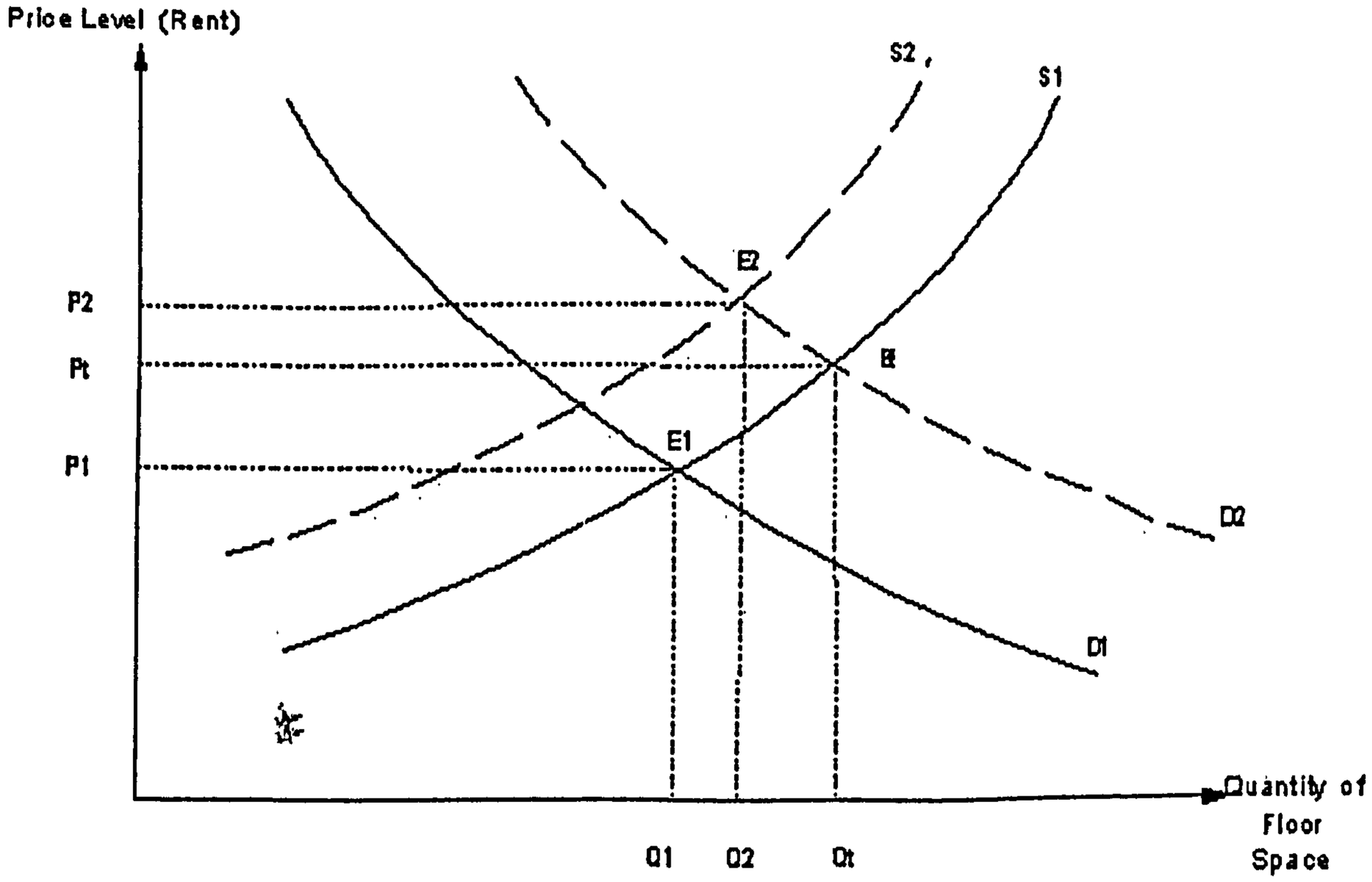
Groups	*Count*	*Sum*	*Average*	*Variance*
Column 1	21	58	2.761905	0.390476
Column 2	23	34	1.478261	0.351779

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	18.08771	1	18.08771	48.85849	**1.5E-08**	4.072654
Within Groups	15.54865	42	0.370206			
Total	33.63636	43				

Appendix 15 The Equilibrium of Demand & Supply

The original market equilibrium will be E1, and the price is P1. When demand increases in the short term (from D1 to D2), the price will increase to Pt and the temporary equilibrium is Et. However, supply will respond to demand in the medium to long term (from S1 to S2), so the new price will be at P2 level and the new equilibrium will be E2.



Appendix 16 ANOVA Results: Sound Financial and Economic Structure

- Singapore and Hong Kong

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
Column 1	25	46	1.84	0.723333
Column 2	23	34	1.478261	0.533597

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	1.567536	1	1.567536	2.477966	**0.122305**	4.051749
Within Groups	29.09913	46	0.63259			
Total	30.66667	47				

- Kuala Lumpur and Taipei

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
Column 1	20	51	2.55	0.997368
Column 2	21	50	2.380952	0.647619

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	0.292741	1	0.292741	0.35787	**0.55315**	4.091278
Within Groups	31.90238	39	0.81801			
Total	32.19512	40				

- Hong Kong and Kuala Lumpur

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
Column 1	25	46	1.84	0.723333
Column 2	21	50	2.380952	0.647619

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	3.339793	1	3.339793	4.847883	**0.032968**	4.061706
Within Groups	30.31238	44	0.688918			
Total	33.65217	45				

Appendix 17 ANOVA Results: The Strength and Stability of the Economy

- Singapore and Taipei

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
Column 1	24	48	2	0.434783
Column 2	20	53	2.65	0.660526

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	4.609091	1	4.609091	8.58456	**0.005461**	4.072654
Within Groups	22.55	42	0.536905			
Total	27.15909	43				

- Singapore and Bangkok

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
Column 1	21	67	3.190476	0.661905
Column 2	24	48	2	0.434783

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	15.87302	1	15.87302	29.37158	**2.54E-06**	4.067047
Within Groups	23.2381	43	0.540421			
Total	39.11111	44				

Appendix 18 ANOVA Results: Tax

- Singapore and Hong Kong

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
Column 1	22	43	1.954545	0.426407
Column 2	23	37	1.608696	0.612648

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	1.344971	1	1.344971	2.578089	**0.115672**	4.067047
Within Groups	22.43281	43	0.521693			
Total	23.77778	44				

- Bangkok and Kuala Lumpur

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
Column 1	20	52	2.6	0.357895
Column 2	19	56	2.947368	0.608187

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	1.175709	1	1.175709	2.451136	**0.125954**	4.105456
Within Groups	17.74737	37	0.479659			
Total	18.92308	38				

- Hong Kong and Bangkok

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
Column 1	19	56	2.947368	0.608187
Column 2	23	37	1.608696	0.612648

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	18.6458	1	18.6458	30.53481	**2.19E-06**	4.084746
Within Groups	24.42563	40	0.610641			
Total	43.07143	41				

Appendix 19 ANOVA Results: Liberalisation of Financial Market

- Hong Kong and Singapore

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
Column 1	26	41	1.576923	0.733846
Column 2	25	40	1.6	0.5

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	0.006787	1	0.006787	0.01096	**0.917051**	4.038392
Within Groups	30.34615	49	0.619309			
Total	30.35294	50				

- Hong Kong and Kuala Lumpur

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
Column 1	26	41	1.576923	0.733846
Column 2	22	69	3.136364	0.885281

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	28.9796	1	28.9796	36.09009	**2.82E-07**	4.051749
Within Groups	36.93706	46	0.80298			
Total	65.91667	47				

Appendix 20 Cluster Analysis: Investment Flexibility & the Liberalisation of the Financial Markets

From the results of the cluster analysis between the investment flexibility and the level of liberalisation of the financial markets, it is clear to see that the level of investment flexibility in Hong Kong and Singapore and the level of liberalisation of the financial markets in Hong Kong and Singapore are one cluster if the number of clusters are chosen to be two. The rest of the three cities can be grouped as another cluster. Although there are some missing data in this analysis, it still can show that the greater the investment flexibility, the higher the liberalisation of the markets.

Average Linkage (Between Groups)

- Agglomeration Schedule

Stage	Cluster Combined		Coefficients	Stage Cluster First Appears		Next Stage
	Cluster 1	Cluster 2		Cluster 1	Cluster 2	
1	7	9	3.000	0	0	4
2	1	5	4.000	0	0	5
3	2	4	5.000	0	0	4
4	2	7	9.000	3	1	9
5	1	3	9.000	2	0	7
6	6	10	10.000	0	0	8
7	1	8	15.667	5	0	8
8	1	6	19.000	7	6	9
9	1	2	39.000	8	4	0

- Vertical Icicle

Number of clusters	Case																		
	SG Liber		HK Liber		SG Flex		HK Flex		TPE Liber		BKK Liber		KL Liber		KL Flex		TPE Flex		BKK Flex
1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
2	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X
3	X	X	X	X	X	X	X		X	X	X		X	X	X	X	X	X	X
4	X	X	X	X	X	X	X		X	X	X		X		X	X	X	X	X
5	X	X	X	X	X	X	X		X		X		X		X	X	X	X	X
6	X	X	X	X	X	X	X		X		X		X		X		X	X	X
7	X	X	X		X	X	X		X		X		X		X		X	X	X
8	X	X	X		X		X		X		X		X		X		X	X	X
9	X	X	X		X		X		X		X		X		X		X		X

Appendix 21 ANOVA Results: Currency Exchange Stability

- Hong Kong and Singapore

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
Column 1	29	50	1.724138	0.564039
Column 2	25	39	1.56	0.506667

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	0.361711	1	0.361711	0.672877	**0.415795**	4.026631
Within Groups	27.9531	52	0.53756			
Total	28.31481	53				

- Singapore and Bangkok

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
Column 1	22	69	3.136364	0.980519
Column 2	25	39	1.56	0.506667

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	29.07888	1	29.07888	39.9546	**1.04E-07**	4.056612
Within Groups	32.75091	45	0.727798			
Total	61.82979	46				

Appendix 22 ANOVA Results: Regulation of Foreign Investors

- Hong Kong and Bangkok

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
Column 1	19	61	3.210526	0.619883
Column 2	26	43	1.653846	1.115385

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	26.60193	1	26.60193	29.2984	**2.59E-06**	4.067047
Within Groups	39.04251	43	0.907965			
Total	65.64444	44				

- Singapore and Kuala Lumpur

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
Column 1	20	61	3.05	0.365789
Column 2	24	39	1.625	0.766304

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	22.15227	1	22.15227	37.85943	**2.39E-07**	4.072654
Within Groups	24.575	42	0.585119			
Total	46.72727	43				

Appendix 23 Cluster Analysis: Market Openness & Restrictions on Foreign Investors

From the results of the cluster analysis between market openness and the restrictions on foreign investors, it is clear to see that market openness in Hong Kong and Singapore and the restrictions on foreign investors in Hong Kong and Singapore are one cluster if there are two clusters in this analysis. The rest of the three cities can be grouped as another cluster. Although there are some missing data in this analysis, this analysis shows that there is a positive correlation between the level of market openness and the levels of restrictions in foreign investors.

Average Linkage (Between Groups)

- Agglomeration Schedule

Stage	Cluster Combined		Coefficients	Stage Cluster First Appears		Next Stage
	Cluster 1	Cluster 2		Cluster 1	Cluster 2	
1	2	4	4.000	0	0	6
2	7	9	5.000	0	0	6
3	5	6	5.000	0	0	7
4	8	10	6.000	0	0	5
5	3	8	9.000	0	4	7
6	2	7	9.500	1	2	9
7	3	5	10.167	5	3	8
8	1	3	13.800	0	7	9
9	1	2	37.750	8	6	0

- Vertical Icicle

Number of clusters	Case																		
	SG Restrict		HK Restrict		SG Open		HK Open		BKK Restrict		TPE Open		TPE Restrict		KL Restrict		KL Open		BKK Open
1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
2	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X
3	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X		X
4	X	X	X	X	X	X	X		X	X	X		X	X	X	X	X		X
5	X	X	X		X	X	X		X	X	X		X	X	X	X	X		X
6	X	X	X		X	X	X		X	X	X		X	X	X		X		X
7	X	X	X		X	X	X		X	X	X		X		X		X		X
8	X	X	X		X	X	X		X		X		X		X		X		X
9	X		X		X	X	X		X		X		X		X		X		X

Appendix 24 Cluster Analysis: Corruption Levels & Transparency of Legislative System

In this aspect, there are three clusters could be defined clearly. From the results of the cluster analysis between the level of corruption and the level of transparency of the legislative system, it is clear to see that the level of corruption in Hong Kong and Singapore and the level of transparency of the legislative system in Hong Kong and Singapore are one cluster. Kuala Lumpur and Taipei form one cluster between these two aspects. The Bangkok market is regarded as one cluster. Although there are some missing data in this analysis, it still shows a correlation between a corruption level and the level of transparency of legislative system.

Average Linkage (Between Groups)

- Agglomeration Schedule

Stage	Cluster Combined		Coefficients	Stage Cluster First Appears		Next Stage
	Cluster 1	Cluster 2		Cluster 1	Cluster 2	
1	2	4	2.000	0	0	2
2	2	9	3.000	1	0	3
3	2	7	3.333	2	0	8
4	5	10	4.000	0	0	7
5	3	8	4.000	0	0	7
6	1	6	5.000	0	0	9
7	3	5	6.000	5	4	8
8	2	3	18.500	3	7	9
9	1	2	40.125	6	8	0

- Vertical Icicle

Number of clusters	Case																		
	TPE Corrupt		TPE Legal		KL Corrupt		KL Legal		HK Corrupt		SG Corrupt		SG Legal		HK Legal		BKK Corrupt		BKK Legal
1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
2	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X
3	X	X	X	X	X	X	X		X	X	X	X	X	X	X		X	X	X
4	X	X	X		X	X	X		X	X	X	X	X	X	X		X	X	X
5	X	X	X		X	X	X		X	X	X	X	X	X	X		X		X
6	X	X	X		X		X		X	X	X	X	X	X	X		X		X
7	X		X		X		X		X	X	X	X	X	X	X		X		X
8	X		X		X		X		X		X	X	X	X	X		X		X
9	X		X		X		X		X		X		X	X	X		X		X

Appendix 25 ANOVA Results: Legal Regulation

- Hong Kong and Singapore

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
Column 1	25	41	1.64	0.49
Column 2	23	36	1.565217	0.529644

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	0.066993	1	0.066993	0.131627	**0.718413**	4.051749
Within Groups	23.41217	46	0.50896			
Total	23.47917	47				

- Kuala Lumpur and Taipei

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
Column 1	18	49	2.722222	0.565359
Column 2	21	58	2.761905	0.490476

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	0.015263	1	0.015263	0.029078	**0.865528**	4.105456
Within Groups	19.42063	37	0.524882			
Total	19.4359	38				

- Bangkok and Hong Kong

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
Column 1	20	67	3.35	0.660526
Column 2	25	41	1.64	0.49

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	32.49	1	32.49	57.46894	**1.87E-09**	4.067047
Within Groups	24.31	43	0.565349			
Total	56.8	44				

- Kuala Lumpur and Bangkok

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
Column 1	21	58	2.761905	0.490476
Column 2	20	67	3.35	0.660526

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	3.542915	1	3.542915	6.179635	**0.017315**	4.091278
Within Groups	22.35952	39	0.573321			
Total	25.90244	40				

Appendix 26 ANOVA Results: Legal Framework

- Kuala Lumpur and Taipei

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
Column 1	19	52	2.736842	0.649123
Column 2	19	45	2.368421	0.578947

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	1.289474	1	1.289474	2.1	**0.155955**	4.113165
Within Groups	22.10526	36	0.614035			
Total	23.39474	37				

- Kuala Lumpur and Bangkok

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
Column 1	19	45	2.368421	0.578947
Column 2	18	58	3.222222	0.653595

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	6.738107	1	6.738107	10.95263	**0.002173**	4.121338
Within Groups	21.53216	35	0.615205			
Total	28.27027	36				

- Kuala Lumpur and Singapore

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
Column 1	19	45	2.368421	0.578947
Column 2	23	33	1.434783	0.529644

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	9.069631	1	9.069631	16.43553	**0.000226**	4.084746
Within Groups	22.07323	40	0.551831			
Total	31.14286	41				

Appendix 27 ANOVA Results: Transparency of Legislative System

- Hong Kong and Singapore

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
Column 1	25	43	1.72	0.543333
Column 2	23	33	1.434783	0.529644

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	0.974493	1	0.974493	1.81542	**0.184459**	4.051749
Within Groups	24.69217	46	0.536786			
Total	25.66667	47				

- Kuala Lumpur and Singapore

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
Column 1	19	49	2.578947	0.25731
Column 2	23	33	1.434783	0.529644

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	13.62101	1	13.62101	33.45914	**9.5E-07**	4.084746
Within Groups	16.28375	40	0.407094			
Total	29.90476	41				

- Kuala Lumpur and Bangkok

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
Column 1	19	49	2.578947	0.25731
Column 2	18	63	3.5	0.5

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	7.841394	1	7.841394	20.89991	**5.81E-05**	4.121338
Within Groups	13.13158	35	0.375188			
Total	20.97297	36				

Appendix 28 ANOVA Results: Political Stability

- Singapore and Hong Kong

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
Column 1	25	31	1.24	0.19
Column 2	27	46	1.703704	0.37037

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	2.79114	1	2.79114	9.835139	**0.002867**	4.03431
Within Groups	14.18963	50	0.283793			
Total	16.98077	51				

- Hong Kong and Kuala Lumpur

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
Column 1	24	60	2.5	0.869565
Column 2	25	31	1.24	0.19

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	19.44	1	19.44	37.20195	**1.9E-07**	4.0471
Within Groups	24.56	47	0.522553			
Total	44	48				

- Singapore and Taipei

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
Column 1	25	31	1.24	0.19
Column 2	21	62	2.952381	0.747619

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	33.46588	1	33.46588	75.46484	**4.25E-11**	4.061706
Within Groups	19.51238	44	0.443463			
Total	52.97826	45				

Appendix 29 ANOVA Results: Government Intervention

- Hong Kong and Singapore

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
Column 1	23	55	2.391304	0.703557
Column 2	25	54	2.16	0.473333

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	0.640906	1	0.640906	1.098494	**0.300073**	4.051749
Within Groups	26.83826	46	0.58344			
Total	27.47917	47				

- Singapore and Taipei

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
Column 1	23	55	2.391304	0.703557
Column 2	19	55	2.894737	0.432749

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	2.637027	1	2.637027	4.533363	**0.039447**	4.084746
Within Groups	23.26773	40	0.581693			
Total	25.90476	41				

- Hong Kong and Bangkok

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
Column 1	20	61	3.05	0.892105
Column 2	25	54	2.16	0.473333

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	8.801111	1	8.801111	13.36799	**0.000693**	4.067047
Within Groups	28.31	43	0.658372			
Total	37.11111	44				

Appendix 30 ANOVA Results: Perceived Corruption Level

- Singapore and Bangkok

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
Column 1	24	30	1.25	0.282609
Column 2	20	72	3.6	0.778947

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	60.24545	1	60.24545	118.7939	**8.07E-14**	4.072654
Within Groups	21.3	42	0.507143			
Total	81.54545	43				

Appendix 31 Cluster Analysis: Corruption Levels & Transparency Levels of the Market

From the results of the cluster analysis between the levels of corruption and the transparency levels of the market, it is clear to see that there are two clear clusters among five cities. The levels of corruption in Hong Kong and Singapore and the transparency level of the market in Hong Kong and Singapore can be regarded as one cluster. The rest of the three cities can be grouped as another cluster. Although there are some missing data in this analysis, it still shows a closed link between a corruption levels and the transparency level of the market.

Average Linkage (Between Groups)

- Agglomeration Schedule

Stage	Cluster Combined		Coefficients	Stage Cluster First Appears		Next Stage
	Cluster 1	Cluster 2		Cluster 1	Cluster 2	
1	8	10	3.000	0	0	4
2	7	9	4.000	0	0	6
3	2	4	4.000	0	0	6
4	3	8	4.500	0	1	7
5	5	6	5.000	0	0	7
6	2	7	8.000	3	2	9
7	3	5	8.167	4	5	8
8	1	3	20.800	0	7	9
9	1	2	32.417	8	6	0

- Vertical Icicle

Number of clusters	Case																	
	SG Trans		HK Trans		SG Corrupt		HK Corrupt		BKK Trans		TPE Corrupt		TPE Trans		KL Trans		KL Corrupt		BKK Corrupt
1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
2	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X
3	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X		X
4	X	X	X	X	X	X	X		X	X	X		X	X	X	X	X		X
5	X	X	X		X	X	X		X	X	X		X	X	X	X	X		X
6	X	X	X		X	X	X		X		X		X	X	X	X	X		X
7	X	X	X		X	X	X		X		X		X	X	X		X		X
8	X	X	X		X		X		X		X		X	X	X		X		X
9	X		X		X		X		X		X		X	X	X		X		X

Appendix 32 ANOVA Results: Public Infrastructure Standard

- Bangkok and Taipei

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
Column 1	22	74	3.363636	0.623377
Column 2	20	51	2.55	0.681579

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	6.935281	1	6.935281	10.6529	**0.002255**	4.084746
Within Groups	26.04091	40	0.651023			
Total	32.97619	41				

- Bangkok and Singapore

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
Column 1	24	31	1.291667	0.476449
Column 2	22	74	3.363636	0.623377

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	49.27684	1	49.27684	90.1559	**3.22E-12**	4.061706
Within Groups	24.04924	44	0.546574			
Total	73.32609	45				

Appendix 33 ANOVA Results: Level of Transparency of Market

- Hong Kong and Singapore

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
Column 1	24	39	1.625	0.592391
Column 2	26	48	1.846154	0.775385

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	0.610385	1	0.610385	0.887574	**0.350853**	4.042652
Within Groups	33.00962	48	0.6877			
Total	33.62	49				

- Taipei and Bangkok

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
Column 1	19	60	3.157895	0.584795
Column 2	22	68	3.090909	0.753247

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	0.045746	1	0.045746	0.067722	**0.796052**	4.091278
Within Groups	26.3445	39	0.6755			
Total	26.39024	40				

- Singapore and Bangkok

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
Column 1	22	72	3.272727	0.779221
Column 2	24	39	1.625	0.592391

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	31.16354	1	31.16354	45.72384	**2.56E-08**	4.061706
Within Groups	29.98864	44	0.68156			
Total	61.15217	45				